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THE COLLECTED WORKS

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ELEMENTS

OF THE

PHILOSOPHY OF THE HUMAN MIND.

VOL. III.

TO THESE ARE PREFIXED,

INTRODUCTION AND PART FIRST

OF THE

OUTLINES OF MORAL PHILOSOPHY.

WITH MANY NEW AND IMPORTANT ADDITIONS.

BY

DUGALD STEWART, ESQ.

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ELEMENTS

OF THE

PHILOSOPHY OF THE HUMAN MIND.

PART SECOND, [SECOND SUBDIVISION;] AND PART THIRD.

PREFACE.

[TO THE THIRD VOLUME OF THE ELEMENTS OF THE PHILOSOPHY OF THE HUMAN MIND.]

THIRTY-FOUR years have now elapsed since the First Volume of this Work was published. At that time, I imagined that a few additional chapters would be sufficient for completing my Review of the Intellectual Powers; but the subject, upon a more narrow examination, has gradually grown so much on my hands, that it has at length swelled to its present magnitude. To this I may add my Volume of *Philosophical Essays*;* the first Part of which may be regarded as a comment on some elementary and fundamental questions which have divided the opinions of philosophers in the eighteenth century. If any of my younger readers should do me the honour to follow me through these researches, I should wish them to peruse my Philosophical Works in the order in which they have been published; that is, after reading the First Volume, to proceed, before entering on the study of the Second and Third, to a perusal of the *Philosophical Essays*. This, indeed, I flatter myself, is not essentially necessary to enable them to compre-

* See *Works*, vol. v.—*Ed.*

hend fully the entire Work which I have entitled *Elements of the Philosophy of the Human Mind;* but it may tend to obviate some doubts, and to clear up some difficulties which, as I have found from experience, are apt to present themselves to the inquisitive student.

The Second Volume of these *Elements*, relating entirely to *Reason, or the Understanding properly so called*, the subjects of which it treats are of necessity peculiarly dry and abstruse; but they, nevertheless, appear to myself to be peculiarly important; and I, accordingly, many years ago, laboured the whole of the materials which compose it, with all the diligence in my power. An intelligent reader will easily perceive that my great aim in this part of my Work has been, by vindicating the principles of Human Knowledge against the attacks of modern Sceptics, to lay a solid foundation for a rational system of Logic. This object, indeed, I have had in view, in every part of these *Elements;* and whoever will take the trouble to mark the various passages which bear on it, will find, I trust, that they are neither few nor unimportant. The Fourth Chapter of the same Volume treats more particularly of the method of inquiry pointed out in the *Novum Organum* of Bacon; directing the attention chiefly to such questions as are connected with the Theory of our Intellectual Faculties, and the primary sources of experimental knowledge in the laws of the Human Frame. In this point of view, Bacon, impatient to hasten, by the force of a prophetic sagacity, to great practical results, left much to be done by his successors; a logical *desideratum* which none of them, so far as I know, has till now even attempted to supply. I would willingly indulge the hope, that neither here nor in any other part of my writings, is a single speculation to be found, which, with due attention, may not be easily mastered; and the habit of

patient thought which such studies have a tendency to form is itself an acquisition of the highest value.

If such a measure of health shall be continued to me as shall enable me to devote occasionally a few hours to the revision of my Papers, it is my present intention to begin, in the course of the ensuing winter, to print my *Inquiries into the Active and Moral Powers of Man.** They who are aware of my very advanced age, and are acquainted with the infirmities under which I have laboured for a course of years, will not suppose that I look forward with undue confidence to the completion of my design; but, besides that some employment is necessary to beguile the passing hours, it will satisfy my own mind, if, by giving a beginning to the undertaking, I shall render it more easy for others to put into form that part of my task that may be left unfinished.

Nihil agere autem cum animus non posset, in his studiis ab initio versatus ætatis; existimavi, honestissime molestias posse deponi, si me ad Philosophiam retulissem.—Cicero *De Officiis.* [Lib. ii. cap. i.]

Kinneil House,
24*th November* 1826.

* See vols. vi. vii.—*Ed.*

PHILOSOPHY OF THE HUMAN MIND.

CONTINUATION OF PART SECOND.[1]

CHAPTER I.—OF LANGUAGE.

HAVING treated at some length of the chief Faculties and Powers which constitute what is commonly called the Human Understanding, I now proceed to the examination of some auxiliary faculties and principles essential to our intellectual improvement, or intimately connected with it.

The form and posture of the human body, and its various organs of perception, have an obvious reference to man's rational nature, and are beautifully fitted to encourage and facilitate the culture of his Mind. A similar remark may be extended to many other parts of our constitution, both external and internal; but there are two which more particularly claim our attention—the power of expressing our thoughts by Language, and the principle of Imitation.

The connexion of language with the subjects which have been under our review in the former volumes of this work is sufficiently obvious. It is to the use of artificial signs (as was formerly shown[2]) that we are indebted for all our general

[1] See Preface to Second Volume [of the *Elements*, &c.]

[2] See *Philosophy of Human Mind*, vol. i. chap. iv. of Abstraction; also vol. ii. [chap. ii.,] sect. 2 of General Reasoning.

conclusions; and without it our knowledge would have been entirely limited to individuals. It is also to the use of artificial signs, that we are indebted for all that part of our information which is not the immediate result of our own personal experience; and for that transmission of intellectual acquisitions from one race to another, which lays the foundation of the progressive improvement of the species.

In treating of Language, I shall begin with a few remarks on *Natural Language*, without which (as Dr. Reid has well observed) the formation of an artificial language would have been impossible.[1] The justness of this remark appears manifest from the following considerations:—that the establishment of *artificial* signs must have been the effect of convention; and that, without signs of one kind or another to serve as a *medium* of communication, no convention could have taken place. It may be laid down, therefore, as a first principle, that the formation of an artificial language presupposes the use of natural signs. These consist in certain expressions of the countenance, certain gestures of the body, and certain tones of the voice. Each of these classes of natural signs well deserves a separate consideration, but I must confine myself here to a few very general and miscellaneous hints.

SECTION I.—NATURAL LANGUAGE.

The language of the face consists in the play of the muscles of which it is composed, particularly of the muscles connected with the *eyes* and the *mouth*, and in the change of colour arising from the motion of the blood. The expression of the countenance, therefore, depends partly on *colour*, and partly on *movement;* of which two circumstances it may be remarked, by the way, that the *former* is far less subject to the restraints of the will than the *latter*, a change of colour often betraying an emotion when the features are perfectly quiescent.

It has been frequently observed by writers on physiognomy,

[1] *Inquiry into the Human Mind*, chap. iv. sect. 2.

and also by those who have treated of the principles of painting, that every emotion, and every operation of the mind, has a corresponding expression of the countenance; and hence it is, that the passions which we habitually indulge, and also the intellectual pursuits which most frequently occupy our thoughts, by strengthening particular sets of muscles, leave traces of their workings behind them, which may be perceived by an attentive observer. Hence, too, it is that a person's countenance becomes more expressive and characteristic as he advances in life; and that the appearance of a young man or woman, though more *beautiful*, is not so *interesting*, nor, in general, so good a subject for a painter, as that of a person whose character has been longer confirmed by habit.

This expression of the human countenance fixes our attention in most cases, and occupies our thoughts a great deal more than the mere material forms which it presents to our senses. I am inclined to think, that what we call *family-likeness*, consists rather in a similarity of expression than of features; and that it is owing to this circumstance that a likeness sometimes strikes one person, which does not strike another. Nobody fancies a resemblance between two merely material objects which is not acknowledged by all the world; but it is possible that, in consequence of different habits of observation, or of various other causes, a particular feature may be expressive to one man, which presents to the eye of another nothing but the material form. It is by copying *expression*, too, much more than by copying the *forms* of the different parts of a face, that mimics are able to recall to us so strong and lively an idea of the persons whose appearance they assume. The features of the original and of the copy, will often be found very strongly contrasted when the imitation is the most perfect, and the likeness the most striking imaginable. Indeed, it is upon this contrast that the ludicrous effect of mimicry in a great measure depends.

There seems to be in man a power of interpreting instinctively certain expressions of the countenance, certain gestures of the body, and certain tones of the voice. This has, indeed, been much disputed by Priestley and other writers, who have

attempted to resolve the whole into experience and observation; but I think there is a variety of considerations which (under proper limitations) go far to justify the common opinion on the subject. It is sufficient for my present purpose to mention one or two of these. I shall have occasion to resume the same argument, at greater length, in treating of Imitation.

1. A child is able at a very early period to understand the meaning of smiles and frowns, of a soothing or threatening tone of voice; long, at least, before it can be supposed capable of so much observation as to remark the connexion between a passion and its external effect.[1] If the interpretation of natural signs be the result of experience, whence is it that children understand their meaning at a much earlier period than they do that of arbitrary signs? If it were merely the effect of observation, the fact would be reversed, inasmuch as it is obviously more easy to remember the sound of a word than the most simple modification of the human countenance. Nor is there anything more wonderful in this instinctive interpretation of certain natural signs than in many other phenomena which infants exhibit; nor perhaps *so* wonderful as that instinctive terror with which nature has certainly endowed some of the brutes for the destined enemies of their respective tribes. It deserves, too, to be remarked, with respect to the lower animals, that they, as well as man, express what passes in their minds by natural signs; and there is even some reason for apprehending, that some of them understand instinctively certain natural signs which we employ.

2. If natural signs be interpreted in consequence of experience only, why are we more *affected* by natural signs than by artificial ones? A peasant who has never heard but one language spoken, has as much reason to associate the word *love* or *hatred* with the sentiment it denotes, as to associate these pas-

[1] Hence the beauty of the word *incipe* in that exquisitely tender line of Virgil's Pollio, in which the poet, addressing himself to the unborn child, calls on him to *begin* his intercourse with the world he was about to enter, by *learning to know his mother by her smile*,—

"*Incipe*, parve puer, risu cognoscere matrem."
—[*Ecl.* iv. 60.]

sions with their natural expressions: and yet the effects of the two species of signs are widely different. For the farther confirmation or limitation of this conclusion, it would be worth while to institute some experiments expressly, if such a case as that recorded by Cheselden should again fall under the examination of an equally intelligent observer.

As ideas multiply, the imperfections of natural language are felt; and men find it necessary to invent artificial signs, of which the meaning is fixed by mutual agreement. In proportion as artificial language improves, the language of nature declines, insomuch that, in such a state of society as ours, it requires a great deal of reflection and study to recover the use of it. This study is, in a considerable degree, the foundation of the arts both of the Actor and of the Orator.

Among the ancients, the study of natural signs seems to have been cultivated with wonderful success. The pantomimes on the Roman stage carried the art to a perfection hardly credible; and about which, I must own, I should be disposed to be extremely sceptical, if I were to form a judgment from the best attempts of the same kind that I have happened to witness. We are told, that they performed long plays without any recitation, and yet conveyed to the spectators a distinct idea of the fable; and here it deserves our notice, that although much study was necessary to acquire the art, or rather to recover the natural capacity, it required no study to understand the exhibition. It consisted of a *natural language*, equally intelligible to the knowing and the ignorant, to the refined and the barbarous. Lucian, in his treatise *Περὶ Ὀρχήσεως*, mentions a king, whose dominions bordered on the Euxine Sea, who happening to be at Rome, in the reign of Nero, and having seen a pantomime perform, begged him of the Emperor as a present, in order that he might employ him as an interpreter among the nations in his neighbourhood, with whom he could have no intercourse on account of the diversity of language.[1]

[1] See *Critical Reflections on Poetry and Painting*, by the Abbé de Bos; also Reid's *Essays on the Intellectual Powers*.

Notwithstanding, however, the decline of natural language in consequence of the use of artificial signs, the acquaintance which we still have with the former (however imperfect) is of essential service in teaching children the meaning of the latter. This may be easily exemplified, by first reading over to a child one of the simplest of Æsop's *Fables*, without taking your eye from the book, or using any inflection of voice; and afterwards telling him the same story, with the commentary of your face, and gestures, and tones. This effect of natural expression, in adding to the significancy of conventional signs, (the effect of the *vultus habitusque hominis*,) is remarked by Horace:

> "Docte Cati, per amicitiam divosque rogatus,
> Ducere me auditum, perges quocumque, memento.
> Nam quamvis referas memori mihi pectore cuncta;
> Non tamen interpres tantumdem juveris. Adde
> *Vultum habitumque hominis*."[1]

From the observations already made it seems to follow, that there are natural signs of the operations and passions of mind, which are interpreted instinctively by all who see them. At the same time, I am ready to grant that there are many expressions of countenance of which the meaning is learnt from experience alone; expressions which may justly be called *natural signs*, inasmuch as their connexion with the things signified is the effect of the natural constitution of the human frame, and as they must, therefore, have exhibited the same appearance in all ages and nations; but which, notwithstanding, are of a very different class from those hitherto considered, being intelligible to those alone who have turned their attention, in some degree, to the study of *Character*. A single instance will be sufficient, both for the illustration and proof of this remark.

When a variety of ideas are passing rapidly through the mind, the eyes are constantly in motion; for every time our thoughts change from one object to another, there is a corresponding movement in the organ. I do not say that it is impossible to prevent this effect from taking place, by a par-

[1] [Sat. II. iv. 88.]

ticular exertion of the will—but only, that this is the natural and ordinary effect of the general laws of our constitution. Revolve, for example, quickly in your mind the names of a number of your acquaintance—or travel over in imagination the different parts of a country with whose geography you are acquainted; you will be sensible of a motion in your eyes every time that you change your idea, either of the person or place. Hence persons of a lively fancy or of a busy mind acquire what is called a *quick eye*. On the contrary, when the attention is much engaged with one object, or when the succession of ideas is slow, as in a deep melancholy, or in a mind occupied with some inquiry which requires patient and collected meditation, the eyes are either completely fixed, or their motions are slow and heavy. Bishop Atterbury takes notice of this circumstance as a remarkable feature in the countenance of Sir Isaac Newton. "The very lively and piercing eye (says Atterbury) that M. Fontenelle in his *Eloge on Newton* ascribes to him, did not belong to him, at least not for twenty years past, about which time I first became acquainted with him; indeed in the whole air of his face and make, there was nothing of that penetrating sagacity which appears in his works. He had something rather languid in his look and manner, which did not raise any great expectations in those who did not know him."[1]

I am inclined to believe that the expression of countenance which Atterbury here ascribes to Newton, will be found, in general, to be characteristic of all men whose habitual studies require patient and profound investigation; excepting, perhaps, in those instances where the effects of their studies have been powerfully counteracted by habits of business, or by an extensive commerce with the world.

In the instances which have just been mentioned, the connexion between the mind and the external appearance, is plainly the *effect* of the operation of the mind on the body. Whether there are not other connexions resulting from the operation of the body on the mind, is a question of greater difficulty. At the same time there seems to be but little

[1] Atterbury's *Letter to M. Thiriot.*

doubt, that *general* inferences concerning the intellectual capacity, may be drawn with some confidence from the form and size of the scull, and from other circumstances connected with the original organization of that part of the body. No parent, for example, fails to feel some apprehension about the intellect of a child whose head is uncommonly large, or whose scull departs widely from the common form. In this last case, the observation is as old as the time of Homer, according to whose idea the head of Thersites (a person whom the Poet represents as of a very unsound understanding) seems to have somewhat resembled a cone.[1] It has been imagined by some, that, corresponding to the varieties of intellectual and moral character, there are certain inequalities or prominencies on the surface of the scull: and it certainly is a legitimate object of experimental inquiry to ascertain how far this opinion is agreeable to fact. Any conclusions on this point, cautiously obtained by induction, would undoubtedly form an interesting accession to what Bacon calls the *Doctrina de Fœdere.*[2] But, hitherto, the inquiry has produced nothing more than bold and gratuitous assertions; and the little we know with certainty of the indications of character as they are exhibited on the exterior of the head, has been inferred, not from the surface of the *cranium*, but from the forms which the face assumes from the play of the muscles. How far the particular rules on this subject, given by Lavater and others, have a solid foundation in experience, I do not pretend to decide. I confess, indeed, I strongly suspect that it is only very gross estimates which can be formed on those mathematical proportions which can be measured by a pair of compasses; and that the traces of the more delicate peculiarities of mind are too complicated and too fugitive to be comprehended in the terms of any verbal description. On the other hand, I will not affirm, that these traces may not be distinctly visible to those who, by long practice, have acquired a sort of new sense, or rather a new perceptive faculty, analogous to what physicians acquire by long experience, for the more delicate

[1] . . . . . αὐτὰρ ὕπερθε
Φόξος ἔην κεφαλήν.—*Ilias*, B. 218.

[2] *De Augmentis Scientiarum*, lib. iv. cap. 1.

and evanescent symptoms of disease. It seems to be owing to this that so little satisfaction can be obtained from the writings of the ancients, concerning the principles on which their art of physiognomy proceeded, while we have complete evidence of the great success with which they cultivated the study.

There is yet another class of signs which may be considered as *natural*, inasmuch as they have been found to present themselves to the common sense of mankind in a great variety of instances, as the most obvious and intelligible signs they could employ for particular purposes. Such, for example, is the universal practice of showing respect for another person, by stepping aside upon the road, in order to make way for him; of rising up when he enters, or when he leaves an apartment; of bending the head forward as a token of assent or approbation; of shaking the head as a sign of dissent or disapprobation; and many others of a similar kind. In general it may be remarked, that wherever a particular sign is in use among unconnected nations, however arbitrary and capricious it may at first appear, it must have some foundation in nature, or reason, or fancy; although perhaps we may be unable to give a satisfactory account of its origin. Thus the agreement, among so many different tribes, in various quarters of the globe, to employ a branch of a tree as an emblem of peace, has probably been suggested by the natural weapon of the savage—the *club*—the emblem exhibiting the materials, or the means of hostility, and, at the same time, a disposition to forbearance and accommodation. The practice of *kissing the hand* to a person at a distance, in token of courtesy and respect, seems to have been very general. Juvenal alludes to it as a habit carried to an extravagant excess by the Greek parasites, who, in his time, infested the streets of Rome:—

> qui semper et omni
> Nocte dieque potest alienum sumere vultum,
> A *facie jactare manus*, &c. &c.[1]

In the book of Job the same gesture is mentioned as an ex-

[1] Juvenal, Sat. iii. 106.

pression of religious adoration, employed by idolaters towards the starry firmament.

"If I beheld the sun when it shined, or the moon walking in brightness, and my heart hath been secretly enticed, or *my mouth hath kissed my hand:* This also were an iniquity to be punished by the judge; for I should have denied the God that is above."

The practice probably originated in an idea that such a gesture was significant of a wish on the part of him who employed it, to convey, or fling by the hand, a salute to the person to whom it was addressed. In a great variety of cases it has been considered as a mark of rank, or of fashion, to allow the nails of one or of more fingers to grow to such a length as to disqualify the hand in a great measure for its proper function. The common account given of this, in the case of the Chinese Mandarins is, that they may show that they are not employed in any manual operations; and it is extremely likely, that some idea of the same kind has suggested the practice in other instances. The ornament which Laloubere saw among the female dancers of Siam,[1] who wore long copper nails on their fingers, which made them appear like harpies, was, in all probability, the relic and memorial of some antiquated custom, similar to that of the Chinese, which had once prevailed in that country. It is amusing, among the endless caprices of our European modes, to observe an occasional coincidence with those of nations placed in a very different state of society. The following lines from the *Misanthrope* of Moliere are sufficient evidence, that the practice of which we have been speaking, was adopted in his days, at least in the case of *one* finger, by the men of fashion at Paris:—

> "Mais au moins, dites moi, Madame, par quel sort,
> Votre Clitandre, a l'heur de vous plaire si fort;
> Sur quel fond de merite et de vertu sublime,
> Appuyez-vous, en lui, l'honneur de votre estime,
> *Est-ce par l'ongle long qu'il porte au petit doigt,*
> Qu'il s'est acquis chez vous l'estime où l'on le voit?

[1] *Historical Relation of the Kingdom of Siam*, chap. i. English Translation. London, 1693.

Vous êtes-vous rendue avec tout le beau monde
Au mérite éclatante de sa perruque blonde?"

The stress which Lord Chesterfield lays in his Advices to his Son on this very trifling article of exterior appearance is founded on the same idea; the peculiar significancy of every thing connected with the hand, in indicating the ordinary habits and occupations of the individual.[1]

In general, wherever a distinction of rank takes place, the modes of the great may be expected, amidst all their caprices, to include some circumstance *significant* of the ease, and indolence, and luxury in which they live. In the extensive monarchies of modern Europe, which comprehend so great a diversity of pursuits and professions, there is a corresponding diversity of appearance and manners, insomuch, that most persons express by their look and gait the particular habits of life to which they have been accustomed. This professional look, whatever it is, whether it indicates the labour of the mind, or of the body, is always understood to derogate from the appearance and air of a man of fashion; an appearance which, if accurately examined, will perhaps be found to consist less in any thing positive or specific, than in a complete negation of everything which can be supposed, by the most remote association, to approximate the possessor to the laborious and useful classes of the community. The extravagant estimation in which the Chinese are said to hold diminutive feet in the female sex, has plainly arisen from an idea similar to that which has suggested the long nails of the Mandarins; that this deformity forms the most unequivocal mark of the indolent habits in which they have been brought up from infancy; and the vigilant care which has been taken in denying them the

[1] An anecdote told by Madame de Staël has, I think, sufficient connexion with the present subject to deserve insertion in a note.

"Je me rapelle qu'un membre de l'Institut, conseiller d'état, me dit sérieusement que les ongles de Bonaparte étoient parfaitement bien faits. Un autre s'écria: 'Les mains du Premier Consul sont charmantes.'—'Ah!' répondit un jeune seigneur de l'ancienne noblesse, qui alors n'étoit pas encore chambellan, 'de grace ne parlons pas politique.'"—*Œuvres Inédites de Madame la Baronne de Staël, publiées par son fils.* Tome i. p. 49.

free and unconstrained exercise of their limbs. Nor is the taste of the Chinese, in this respect, (though certainly carried to an extreme,) altogether singular. It has probably prevailed to a certain extent among all civilized nations. Ovid, in counselling his pupil in the art of love, as to the flattery most likely to gain the ear of his mistress, begs him not to forget to praise her *small foot* and *taper fingers;* two points of female beauty which he manifestly combines together from their peculiar significance, as marks of a life spent in sedentary and effeminate indulgence:—

> "Nec faciem, nec te pigeat laudare capillos:
> Nec teretes digitos, exiguumque pedem."[1]

The French taste, in this particular, may be inferred from an oriental tale told by Montesquieu, in one of his letters to his friend the Abbé de Guasco, of an old hermit, who, after having withstood, during a long life, all the temptations of the devil, was at last betrayed to his ruin by that subtle and malignant spirit, who appeared to him in the shape of a little slipper.[2]

The remarks now made may serve to suggest some general principles for explaining the agreement of different ages and nations in the employment of various signs which seem at first to be quite arbitrary; others, it is probable, might be traced up to certain natural signs of which they are abbreviations, in a manner analogous to that in which arbitrary written characters have been so ingeniously traced up by Dr. Warburton to pictures or hieroglyphics. I remember to have heard Mr. Braidwood remark, that his dumb pupils, from whatever part of the country they came, agreed, in most instances, in expressing assent by holding up the thumb, and dissent by holding up the little finger. Admitting this to be a fact, (which I would not be understood to state upon my own personal knowledge,) it can be explained only by supposing that these gestures are abbreviations of those signs by which assent and dissent are generally expressed in the language of nature; and, in truth,

[1] [*Ars Amandi*, i. 622.]

[2] *Œuvres de Montesquieu*, tom. v. p. 315, edit. of Paris, 1788.

the process by which they were introduced may be easily conceived. For, the natural sign of assent is to throw the body open, by moving the hand from the breast with the palm towards the body, and the thumb uppermost. The natural sign of dissent is the same movement, with the back of the hand towards the body, and the little finger uppermost. The former conveys the idea of cordiality, of good humour, and of inviting frankness; the latter of dislike and aversion. If two dumb persons were left to converse together, it is reasonable to suppose that they would gradually abridge their natural signs for the sake of despatch, and would content themselves with *hinting* at those movements, which could be easily anticipated from the commencement; and in this manner might arise those apparently arbitrary marks of assent and dissent, which have just been mentioned.

When different savage tribes have occasion to carry on any intercourse, whether friendly or hostile, with one another, the imperfections of natural signs will force them to call to their aid the use of such conventional signs as may be necessary to make themselves mutually understood; which conventional signs, when once introduced, will become permanent acquisitions to both parties. In this way it is easy to conceive how signs, the most capricious and arbitrary, may spread over such a continent as America, where the hunting grounds of some of the tribes are compared in point of extent to the kingdom of France. And, in fact, it would appear, from some late accounts, that, in the new world, there exists a sort of mute *Lingua Franca* by which the different tribes hold communication with each other.

In a very interesting, and (as may be presumed from the authority under which it is published[1]) a very authentic historical account of the Indian nations, we are given to understand that there actually exists a system of visible signs, intelligible wherever Indians are to be found, over the whole American continent. "The Indians," it is said, "have a language of

[1] That of the American Philosophical Society, held at Philadelphia. See the first volume of their *Transactions*, p. 116. Phil. 1819.

signs, by which they communicate on occasions when speaking is not prudent or proper, as, for instance, when they are about to meet an enemy, and by speaking they would run the risk of being discovered. By this means they also make themselves understood to those nations of Indians whose language they are not acquainted with, *for all the Indian nations understand each other in this way.* It is also, in many cases, a saving of words, which the Indians are much intent on, believing that too much talking disgraces a man. When, therefore, they will relate something extraordinary in a few words, they make use of corresponding signs, which is very entertaining to those who listen and attend to them, and who are acquainted both with the language and the signs, being very much as if somebody were to explain a picture set before them."

In a still more recent American publication,[1] we are presented with a specimen of the visible and conventional signs used by the Indians. From the list, which occupies a good number of pages, it may suffice to select a few examples.

1. "Sun.—The forefinger and thumb are brought together at tip, so as to form a circle, and held up towards the sun's track. To indicate any particular time of the day, the hand with the sign of the sun is stretched out towards the east horizon, and then gradually elevated, to show the ascent of that luminary, until the hand arrives in the proper direction to indicate the part of the heavens in which the sun will be at the given time."

2. "Night or Sleeping.—The head, with the eyes closed, is laterally inclined for a moment upon the hand. As many times as this is repeated, so many nights are indicated;[2] very

[1] *Account of an Expedition from Pittsburgh to the Rocky Mountains, performed in the years* 1819 *and* 1820, *by order of the Secretary of War:* compiled from the notes of Major Long, Mr. T. Say, &c., by Edwin James. Published 1823.

[2] From the account of James Mitchell, a boy born blind and deaf, (printed in the seventh volume of the *Transactions of the Royal Society of Edinburgh,*) it appears that the same sign is employed by Miss Mitchell for the same purpose, in her communications with her unfortunate brother, and that he interprets its meaning readily. [See after.]

This vocabulary of the mute *Lingua Franca*, by which the savages of differ-

frequently the sign of the sun is traced over the heavens, from east to west, to indicate the lapse of a day, and precedes the motion."

3. "Combat.—The clenched hands are held about as high as the neck, and five or six inches asunder, then waved two or three times laterally, to shew the advances and retreats of the combatants; after which the fingers of each hand are suffered to spring from the thumb towards each other, as in the act of sprinkling water, to represent the flight of missiles."

These facts seem to me to be not only curious, but to form a new and not unimportant accession to the Philosophy of the Mind. They illustrate, in a very striking manner, the instinctive propensity in our species to communicate their ideas to each other; and the variety of expedients (some of them by no means obvious) to accomplish this end, which necessity suggests to man even in his rudest state. The existence of an artificial language, consisting of visible signs, intelligible among *all* the Indian nations spread over the American Continent, is a fact which I do not recollect to have met with in any prior account of these interesting communities; and, if duly reflected on, may serve to diminish our wonder at the invention of oral speech,—an art to which many philosophers of high name have affirmed that the human faculties would have been altogether incompetent, without an express revelation for the purpose. Surely the ingenuity displayed in these visible signs is at least equal to what is requisite for giving audible names to surrounding objects, and for some of the succeeding steps in the

ent tribes hold intercourse with each other, may serve to illustrate a remark of Court de Gebelin in his *Monde Primitif*.

"Rien ne seroit plus aisé que de composer une grammaire du geste, et un dictionnaire du geste. C'est ce qu'avoient assez bien apperçu les religieux de l'ordre de Citeaux qui, vers la fin du seizième siècle, convinrent d'un certain nombre de signes pour leur tenir lieu de la parole: ils l'attachèrent le plus qu'ils purent à les rendre imitatifs. Un doigt contre l'oreille, signifioit chez eux *ouïr;* ôté de dessus l'œil, *voir;* pour l'opposé c'étoit l'action de fermer ces deux organes. *Recevoir*, c'étoit fermer la main; *donner*, c'étoit l'ouvrir. *Se baigner*, c'étoit passer sur la poitrine la main creuse, comme si elle contenoit de l'eau. La gorge serrée par la main désignoit la cessation de vie."—*Monde Primitif*, tome iii. pp. 106, 107.

formation of speech. The truth of this position will, I hope, be still more clearly evinced by some of the following speculations.

SECTION II.—OF ARTIFICIAL LANGUAGE.

It was before remarked, that, as ideas multiply, the imperfections of natural language are felt, and men find it necessary to invent artificial signs, of which the meaning is fixed by mutual agreement. Dumb people, who associate much together, soon invent a language of their own, consisting of visible signs; and the same thing happens in those convents and boarding-schools, where a severe discipline prevents a free communication by means of ordinary speech.

Artificial signs may be divided into the *visible* and the *audible*. To the former class belong those signals by fire, which were so much in use among the ancients. The Greeks are even said to have invented a method of expressing, by the number and arrangement of torches, every letter of the alphabet, so that a guard on one eminence could converse with another at a distance, by spelling his words. A full and curious description of this method may be found in Polybius.

Another instance of a visible language occurs in that system of signals which is said to have been introduced into the British navy by James II.; and in the still more recent invention of the telegraph,—a contrivance which has been found to admit of a far more extensive and important application than could have been anticipated *a priori;* and which is probably still susceptible of farther improvements, tending to enlarge and accelerate the mutual intercourse of mankind.

If men had been destitute of the organs of speech, or of the sense of hearing, there can be no doubt that they might have contrived, by means of an alphabet of visible signs, to express all their ideas and feelings; as we see done by school-boys, who, for their amusement, denote the different letters by certain conformations and movements of the fingers. Such a language,

however, is attended with great inconveniences. It is useless in the dark, or when the person we are conversing with is removed to a considerable distance: nor does it enable us to call his attention, if his eye should happen to be otherwise engaged. To this may be added, that it is not susceptible of that rapidity which is necessary for the purposes of life. In all these respects, audible signs possess important advantages, more particularly in the last, in consequence of the wonderful adaptation of our powers of articulation to the perceptive powers of the human ear,—an organ, we may remark in passing, which is always open to the reception of sounds. It has been found that two thousand letters, when combined into words, may be pronounced in a minute of time, so that the sound of each letter may be distinctly heard.[1] The infinite variety of modifications of which the voice is capable, enable us to add, in some measure, the expressiveness of natural signs to the conventional meaning of arbitrary words; while its musical modulations render language a vehicle of pleasure as well as information.

Among all nations, accordingly, audible signs form the established medium of intellectual communication, and the materials (as indeed the etymology of the words denotes) of what is commonly called LANGUAGE or SPEECH;—a wonderful art, infinitely diversified in the principles on which it has proceeded in different instances, and admitting of all possible degrees of perfection, from the uncouth jargon of a savage tribe, to the graces of which the most cultivated languages are susceptible, in the hands of the orator or the poet.

To this subject the attention of speculative men, both ancient and modern, has been directed in a singular degree, and many ingenious conclusions have been the result of their labours. The subject is indeed of vast extent, and with peculiar propriety may be said, in the words of Mr. Burke, "to branch out to infinity." To attempt to enumerate the various aspects under which it has been viewed by different authors, would be tedious and useless; but a few of them seem necessarily to fall under our plan, on account of their close connexion

[1] Dr. Gregory's *Conspectus Medicinæ Theoreticæ*.

with the Philosophy of the Human Mind. Among these the first place seems due to the inquiry concerning the Origin and History of Language.

OF THE ORIGIN AND HISTORY OF LANGUAGE.

PART I.

As the acquisition of language, in the case of every individual, commences long before that period to which memory extends, it comes to be not only combined, but almost identified with all our intellectual operations; and, on a superficial view of the subject, appears inseparable from the principles of our constitution. Hence it happens, that, when we first begin to philosophize on it, and to consider what a vast and complicated fabric language is, it is difficult for us to persuade ourselves, that the unassisted faculties of the human mind were equal to the invention. It is justly remarked by Dr. Ferguson, that when language has attained to that perfection at which it arrives in the progress of society, "the speculative mind, in comparing the first and last steps of the progress, feels the same sort of amazement with a traveller, who, after rising insensibly on the slope of a hill, comes to look from a precipice of an almost unfathomable depth, to the summit of which he scarcely believes himself to have ascended without supernatural aid." It is interesting, therefore, to transport ourselves in imagination to the early periods of society, and to consider by what steps our rude forefathers must have proceeded in their attempts towards the formation of a language, and how the different parts of speech gradually arose. Upon this problem, accordingly, some of the most eminent of our modern philosophers have employed their ingenuity, and have suggested a variety of important observations. A few slight and unconnected reflections are all that I can propose to offer here.

Before proceeding farther, it is necessary to remark, that the object of the problem now mentioned, is not to ascertain an historical fact, but to trace the natural procedure of the mind,

in the use of artificial signs. In this speculation, therefore, it is not to be understood that we mean to prejudge the question, whether language be, or be not, the result of immediate revelation; but only to trace the steps which men, left entirely to themselves, would be likely to follow, in their first attempts to communicate their ideas to each other: For that the human faculties *are* competent to the formation of a language I hold to be certain; and, indeed, one great use of this very speculation is to explain in what manner this might have been accomplished, and by what easy transitions the various parts of speech might have arisen successively out of each other.

One of the most philosophical attempts yet made to delineate this progress is to be found in a dissertation of Mr. Smith's published at the end of his *Theory of Moral Sentiments.* When I say *philosophical,* I would be understood to speak of its general scope and design, for in its details it is certainly liable to some obvious and formidable objections. This dissertation does not seem ever to have attracted much of the public notice; though it was written by the author in early life, and was one of his favourite performances. It contains, unquestionably, several most important and luminous observations; and appears to me, on the whole, amply to deserve the partiality with which Mr. Smith always regarded it.[1] It was first published, I have been told, in some London collection of fugitive pieces by different authors, and if it had never appeared elsewhere, it would long ago have sunk into oblivion. It was with a view of procuring for it a more general circulation that it was appended to the *Theory of Moral Sentiments.* From the unpretending simplicity with which it is written, it is so little calculated to draw the attention of common readers, that I recollect few instances of its being quoted by later writers; but it has had a visible effect on the speculations of many of them, particularly of those foreigners who have treated

[1] The strongest proof of this partiality is, that it was republished by Mr. Smith a little before his death, at the end of a corrected and enlarged edition of the *Theory of Moral Sentiments*, without the alteration, as far as I have observed, of a single word from the first impression.

of the origin of the Romanic tongues spoken in modern Europe. Some, indeed, of the remarks contained in it, which, as far as I know, were Mr. Smith's original property, are now become so common, that I have heard them criticised as not altogether worthy, from their triteness, of the author of the *Wealth of Nations*. Referring to Mr. Smith's Discourse for the particulars of his theory, I shall avail myself of this opportunity of offering a few slight criticisms on one or two passages, which seem to me less satisfactory than the rest of it.

In order to make the first of these criticisms intelligible, it is necessary to premise, that, according to Mr. Smith, the first step that men would take towards the formation of a language, would be the assignation of particular names to denote particular objects—or, in other words, the institution of nouns substantive; which nouns, it is plain, (according to this theory,) would be all proper names. Afterwards, as the experience of men enlarged, these names would be gradually applied to other objects resembling the first; in the same manner as we sometimes call a great general a *Cæsar*, or a great philosopher a *Newton;* and thus, those words which were originally proper names, would gradually and insensibly become *appellatives*. It is by a slow process of this kind, (as Mr. Smith remarks,) and not by any deliberate or scientific exertion of *abstraction*, that objects come at last to be classified and referred to their proper genera and species.[1]

"When the greater part of objects," says Mr. Smith, "had thus been arranged under their proper classes and assortments, distinguished by such general names, it was impossible that the greater part of that almost infinite number of individuals, comprehended under each particular assortment or species, could have any peculiar or proper names of their own, distinct from the general name of the species."—"When there was oc-

[1] This theory of Mr. Smith, as well as some of my own observations on the same subject, have been animadverted on with much acuteness by Dr. Magee, now Archbishop of Dublin. In a note at the end of the second volume of this work, I have attempted to reply to the objections of the learned and right reverend author. See Note K, where the reader will also find Dr. Magee's strictures quoted in his own words

casion, therefore, to mention any particular object, it often became necessary to distinguish it from other objects comprehended under the same general name; either, first, by its peculiar qualities; or, secondly, by the peculiar relation it stood in to some other things. Hence the necessary origin of two other sorts of words, of which the one should express quality, and the other relation."—"In other words, hence the origin of *adjectives* and *prepositions*. The *green tree* might distinguish one tree from another that had been blasted. The *green tree of the meadow* distinguishes the tree, not only by its quality, but by the relation it bears to another object."

So far Mr. Smith's doctrine appears to be equally simple, ingenious, and just. His account, in particular, of the gradual and insensible transformation of *proper names* into *appellatives*, (however obvious it may seem,) is widely different from that commonly given in books of logic and metaphysics—in which the formation of *genera and species* is represented as an intellectual process of the most mysterious and unintelligible nature.[1] Nor has Mr. Smith been less successful in accounting

[1] Rousseau, who is very seldom misled by the authority of the schools, has, however, in this instance, adopted with much confidence the common language of logicians.—See his Essay, *Sur les Causes de l'Inégalité parmi les Hommes, et Sur l'Origine des Sociétés*. Partie première.

It is somewhat curious that Leibnitz seems to assume the contrary of Mr. Smith's doctrine as an *axiom*. In the first sentence of the following paragraph, he lays it down as a self-evident principle, that all proper names were at first appellatives; a proposition which must now appear nearly as absurd as to maintain, that *classes* of objects existed before *individual* objects had been brought into being. "Illud pro axiomate habeo, *omnia nomina quæ vocamus propria, ali quando appellativa fuisse;* alioqui," he adds, "ratione nulla constarent. Itaque quoties vocabulum fluminis, montis, sylvæ, gentis, pagi, oppidi, villæ, non intelligimus, intelligere debemus, ab antiqua nos lingua discessisse."—*Miscell. Berolin.* tom. i. p. 1. (1710.) [*Opera*, Dutensii, tom. iv. pars ii. p. 186.]

When Leibnitz, however, comes to explain his idea more fully in the sequel of the paragraph, we find that he here uses the word *appellative* as synonymous with *descriptive*, and not in its usual sense, as synonymous with *generic;* and that his proposition amounts only to the trite and indisputable observation, that in simple and primitive languages, all proper names (such as the names of persons, mountains, places of residence, &c.) are descriptive or significant of certain prominent and characteristical features, distinguishing them from other objects of the same class; a fact of which a large proportion of the surnames still

for the invention of *adjectives* and *prepositions;* and in explaining the connexion in which it stands with the previous step of *classifying* objects, and of distinguishing them by *general names.* In some of the remarks, however, which he has offered on the *metaphysical difficulties* attending the invention of these two classes of words, I cannot agree with him; and as the same error (if it is one) runs through some other parts of his theory, I shall make no apology for attempting shortly to point out in what it appears to me to consist. The doctrine to which I object, I shall state in Mr. Smith's own words:—"It is worth while to observe, that those prepositions which, in modern languages, hold the place of the ancient cases, are of all others the most general, and abstract, and metaphysical; and, of consequence, would probably be the last invented. Ask any man of common acuteness, what relation is expressed by the preposition *above?* He will readily answer, that of *superiority.* By the preposition *below?* He will as quickly reply, that of *inferiority.* But ask him what relation is expressed by the preposition *of?* And if he has not beforehand employed his thoughts a good deal upon these subjects, you may safely allow him a week to consider of his answer."[1]

In reply to this observation, it may suffice to remark, that the difficulty of explaining the theory of any of our intellectual operations, affords no proof of any difficulty in applying that operation to its proper practical purpose; nor is the difficulty of tracing the metaphysical history of any of our notions, a proof that in its first origin it implied any extraordinary effort of intellectual capacity. How many metaphysical difficulties might be raised about the mathematical notions of a line and of a surface? What efforts of abstraction (it might be said)

in use all over Europe, as well as the names of mountains, villages, and rivers, when traced to their primitive roots, afford numerous and well-known exemplifications.

See what I have farther remarked on this subject, in Note M, at the end of the second part of my *Dissertation prefixed to the Supplement to the Encyclopædia Britannica.* [Supra, *Works,*] vol. i.]

[1] For some additional observations on the problem concerning the Origin of Language, see the *Dissertation* quoted in the last note, Part Second. [*Supra,* vol. i. pp. 360 363.]

are implied in the ideas of length without breadth, and of length and breadth without thickness; and yet we know, in point of fact, that these efforts are easily and successfully made by every peasant, when he speaks of the length, breadth, or height of his cottage, and when he mentions the number of acres or roods in his field. In like manner, although it may be difficult to give a satisfactory account of the origin and import of such words as *of* or *by*, it ought not to be concluded that the invention of them implied any metaphysical knowledge in the individual who first employed them. Their import, we see, is fully understood by children of three or four years of age.

This criticism on Mr. Smith coincides with the following remark of Dr. Ferguson: "Parts of speech, which in speculation cost the grammarian so much study, are, in practice, familiar to the vulgar,—the rudest tribes, even the idiot and insane, are possessed of them. They are soonest learned in childhood, insomuch that we must suppose human nature, in its lowest state, competent to the use of them; and without the intervention of uncommon genius, mankind in a succession of ages, qualified to accomplish in detail this amazing fabric of language, which, when raised to its height, appears so much above what could be ascribed to any simultaneous effort of the most sublime and comprehensive abilities."[1]

[1] *Principles of Moral and Political Science*, vol. i. p. 43. Edinburgh, 1792.

I cannot help pointing out another part of Mr. Smith's theory, to which the foregoing criticism may be applied with still greater force. It relates to the metaphysical difficulties which, in his opinion, must have attended the invention of the personal pronouns,—particularly of the pronoun *I*. "The word I," he observes, "is a word of a very particular species. Whatever speaks may denote itself by this personal pronoun. The word *I*, therefore, is a general word, capable of being predicated, as the logicians say, of an infinite variety of objects. It differs, however, from all other general words in this respect, that the objects of which it may be predicated, do not form any particular class of objects distinguished from all others. The word *I*, does not, like the word *man*, denote a particular class of objects, separated from all others by peculiar qualities of their own. It is far from being the name of a species, but, on the contrary, whenever it is made use of, it always denotes a precise individual, the particular person who then speaks. It may be said to be at once, both what the logicians call a singular, and what they call a common term;

The circumstance which induced Mr. Smith to lay so great stress on the difficulties attending the invention of adjectives and prepositions, was a desire of accounting for certain peculiarities in the genius of the ancient languages; particularly the variations in the terminations of the substantives, according to differences of gender and other circumstances, and the employment of *cases*, to express those varieties of relation, which in the modern tongues are denoted by prepositions. But although this part of his theory does not seem to me to be satisfactory, the *fact* to which it refers is a most important one, and strongly discriminates the Greek and Latin languages from those spoken in modern Europe. I shall afterwards take notice of the effects it has produced on the style of ancient and of modern composition.

At present I shall only remark farther under this head, that the transition from substantives to adjectives, was probably not (as Mr. Smith supposes) a step taken all at once. It is by a process much more gradual and imperceptible, that all im-

and to join in its signification the seemingly opposite qualities of the most precise individuality, and the most extensive generalization. This word, therefore, expressing so very abstract and metaphysical an idea, would not easily or readily occur to the first formers of language. What are called the personal pronouns, it may be observed, are among the last words of which children learn to make use. A child speaking of itself says, *Billy walks, Billy sits*, instead of *I walk, I sit*."—*Moral Sentiments*, vol. ii. pp. 443, 444.

Notwithstanding this very refined and ingenious reasoning, I must own it appears to me an unquestionable fact, that the import of the word *I*, (to which may be added the still more metaphysical and complicated import of the word *mine*,) is one of the first which is fully comprehended by every infant; and that when a child says, "*Billy walks*," "*Billy sits*," he annexes the very same idea to the word *Billy*, which he afterwards does to the pronoun *I*. What other idea can he possibly annex to it, unless he makes use of the third person, as Cæsar does in his *Commentaries*, to avoid the imputation of egotism? Nothing, surely, can be more natural, than that he should apply to himself the same name by which he is always distinguished when spoken to by others. I knew a child (and a child of very quick parts) who, in his first attempts at speech, invariably made use of the pronoun *you*, instead of *I*. In consequence of being always addressed by the former sound, he probably considered it as his name; and as the child mentioned by Mr. Smith substituted the word *Billy* instead of *I*, so he, from the very same cause, mistook the one personal pronoun for the other. Indeed, the mistake appears to me so natural, that I am somewhat surprised to hear the case is so uncommon.

provements in language are made. In order to qualify an object, the name of some other object would be added, in which that quality was remarkable. This mode of speaking is still common in many cases, particularly in that of *colour*; as when we speak of an *orange* colour, a *clay* colour, a *lead* colour, and in numberless other cases of the same description,—indeed, in *every* case in which a colour occurs to us, which has no appropriate or specific name.

Agreeably to this idea, Dr. Wallis long ago observed, "Adjectivum respectivum nihil aliud est quam ipsa vox substantiva adjective posita."[1] Of this he gives the following examples in our language: a *sea fish*, a *river fish*, a *wine vessel*, a *sea voyage*, a *gold ring*, and various others.

The same view of the subject has been followed out much farther by Mr. Horne Tooke, according to whom, "Adjectives, though convenient abbreviations, are not *necessary* to language."[2] They are not, therefore, ranked by this ingenious grammarian, but not very profound philosopher, among the parts of speech.

The want of an adjective distinction, however, to substantives when thus employed, is considered by Mr. Tooke as a defect in a language; which defect, he supposes, (I think with much probability,) "was originally the case in the rude state of all languages." In illustration of this, he quotes a very curious paper by Dr. Jonathan Edwards, containing observations on the language of the Muhhekaneew Indians, (or, as they are commonly called by the Anglo-Americans the *Mohegans*.) "The Mohegans," says Dr. Edwards, "have no adjectives in all their language. Although it may at first seem not only singular and curious, but impossible that a language should exist without adjectives, yet it is an indubitable fact."[3]

[1] *Grammatica Linguæ Anglicanæ*, cap. v. De Adjectivis.

[2] Vol. ii. p. 458.

[3] The high reputation which Dr. Edwards justly enjoys as an acute Metaphysician, and the opportunities which fell to his lot of acquiring a perfect knowledge of the language in question, give to his testimony on this subject a weight very different from that belonging to most of the authorities commonly quoted with respect to the languages of savage tribes.

"When I was but six years of age,"

The observations, too, which Mr. Smith has made on the origin of *verbs* appear to me liable to strong objections. "Verbs," he says, "must necessarily have been coeval with the very first attempts towards the formation of language;"

says this writer, "my father removed with his family to Stockbridge, which at that time was inhabited by Indians almost solely. The Indians being the nearest neighbours, I constantly associated with them; their boys were my daily schoolmasters and play-fellows. Out of my father's house I seldom heard any language spoken beside the Indian. By these means I acquired the knowledge of that language, and a great facility in speaking it; it became more familiar to me than my mother tongue. I knew the names of some things in Indian which I did not know in English; even all my thoughts ran in Indian; and though the pronunciation of the language is extremely difficult to all but themselves, they acknowledged that I had acquired it perfectly, which, as they said, never had been acquired before by any Anglo-American.

"The language which is now the subject of observation is that of the *Muhhekaneew* or Stockbridge Indians. They, as well as the tribe of New London, are, by the Anglo-Americans, called *Mohegans*. This language is spoken by all the Indians throughout New England. Every tribe, as that of Stockbridge, of Farmington, of New London, &c., has a different dialect, but the language is radically the same. Mr. Elliot's translation of the Bible is in a particular dialect of this language. This language appears to be much more extensive than any other language in North America. The languages of the Delawares in Pennsylvania; of the Penobscots, bordering on Nova Scotia; of the Indians of St. Francis in Canada; of the Shawanese on the Ohio; and of the Chippewaus at the westward of Lake Huron; are all radically the same with the *Mohegan*. The same is said concerning the languages of the Ottowans, Nanticooks, Munsees, Menomonees, Messisaugas, Saukies, Ottagaumies, Killistinoes, Nipegons, Algonkins, Winnebagoes, &c. That the languages of the several tribes in New England, of the Delawares, and of Mr. Elliot's *Bible*, are radically the same with the *Mohegan*, I assert from my own knowledge."

(*Observations on the Language of the Muhhekaneew Indians*, communicated to the Connecticut Society of Arts and Sciences, published at the request of the Society, and printed by Josiah Meigs, 1788.)

I am sorry to add, that of this paper of Dr. Edwards, which cannot fail to be peculiarly interesting, I know nothing but from Mr. Tooke's quotation, vol. ii. p. 461.

The account given by Dr. Edwards of the language of the Mohegan Indians is strongly confirmed by what we are told by Lord Monboddo, on the authority of Gabriel Sagard, with respect to the Hurons, that there is no such thing in the language as a quality expressed without the particular substance in which it is inherent. For there is not in the whole language one adjective, that is, a word denoting a quality inherent in some undetermined subject; far less have they abstract nouns, as they are called, derived from adjectives, such as goodness, badness, and the like.

"This Gabriel Sagard," says Lord Monboddo, "was a religious of the order of St. Francis, who was on a mission to the country of the Hurons in the

and "probably," he adds, "existed first in an impersonal form."[1] But if all verbs were impersonal, how could a substantive noun be introduced into a sentence? or, indeed, what could have been the use of substantives? And yet, in the very first sentence of this dissertation, it is taken for granted that the invention of nouns substantive must have been the first step taken towards the formation of a language.[2]

It should seem that the following may be laid down as a general rule with respect to the subject. Men were led to invent *artificial signs* from the defects of *natural ones;* and therefore it is probable that the first artificial signs would be employed to convey those ideas which it is most difficult to express by the language of nature. To judge by this rule, we must conclude that substantives were prior to verbs; for an idea of individual objects would be conveyed with much greater difficulty than that of action or suffering in any particular mode. In confirmation of this, we may remark, that what we call *action* in delivery is still chiefly connected with verbs; a proof that the notions they convey are more easily expressible by natural signs than the import of any of the other parts of

year 1626, and published his Travels at Paris in the year 1631, under the title of *Le Grand Voyage du Pays des Hurons;* to which he has added a dictionary of the Huron language." The book, Monboddo informs us, is so extremely rare, that he could only hear of one copy of it in the Royal Library at Paris, for the use of which he expresses his obligation to the librarian, M. Capperonnier. — *Origin and Progress of Language*, vol. i. pp. 471, 534.

[1] *Theory of Moral Sentiments*, 6th edit. vol. ii. pp. 434, 435.

[2] A late very learned author has censured, with some severity, the whole of this Dissertation, and, in particular, has pronounced "Mr. Smith's opinion concerning the origin of substantive nouns as antecedent to that of adjectives or names of qualities, to be altogether unsupported by facts in the history of language." The same author asserts, with some confidence, that "the first words were monosyllabic verbs"—"this, he says, "is discovered by analysis."—(*History of European Languages*, &c., by the late Alexander Murray, D.D. vol. ii. p. 489.) The ingenious critic, in my opinion, would have been nearer the truth had he blamed Mr. Smith for not keeping his original and fundamental proposition more steadily in view in the sequel of his theory.

As for Dr. Murray's assertion, that "the first words were monosyllabic verbs," how is it to be reconciled with the fact, that, in most savage languages, the words are of so immoderate a length as to appear to our ears quite ludicrous?

speech. Language, then, I apprehend, in its rudest state, would consist partly of natural and partly of artificial signs; substantives being denoted by the latter, and verbs by the former.

Mr. Smith says, "a savage who saw a *wolf* or a *bear* approaching, would announce the event by using the word *venit* without a substantive."[1] To me it appears much more probable that he would exclaim *Lupus* or *Ursus*, without a verb. Such an exclamation, accompanied with natural signs, would convey a complete idea of the event; and is, indeed, the very mode of expression which, on such an occasion, would probably be used, even in the present improved state of language; whereas the word *venit*, with whatever natural signs we may conceive it to be connected, could never convey any information concerning the particular animal whose approach was to be announced.

From these observations I am led to conclude, that as soon as verbs were introduced, they were used *personally*, excepting in those cases where a foundation is laid for the use of *impersonal* verbs in the nature of things; and, in such cases, those verbs which were once impersonal always continue so, under every progressive improvement of the art of speech. In most instances, it may be observed, there is a natural foundation for a separation of the agent and the action, because the same agent may act in an infinite variety of modes; or, in other words, the same substantive may be a nominative to an infinite variety of verbs. It is thus we say *Petrus ambulat, Petrus sedet, Petrus dormit;* these three verbs expressing three different states of the same person. In some cases, however, we see an event where the agent and action, and, consequently, the nominative and verb, are inseparably blended or combined together; and where, accordingly, we are naturally led to express ourselves by means of an impersonal verb. Of such cases, the following examples may serve as a specimen, if they indeed do not comprehend all the varieties that exist.

1*st*, When the agent and action are always seen in a state of

[1] *Theory of Moral Sentiments*, vol. ii. p. 437.

combination, or, in other words, when the agent only *exists* in that mode of action which the verb expresses. This is the case with *rain, snow, wind,* where the action is implied in the substantive nouns, and where, on the other hand, the substantive is implied or involved in the corresponding verbs. We do not, therefore, here, as in the former cases, make use of a mode of speaking analogous to *Petrus ambulat, Petrus sedet,* but express the event in one word, *pluit, flat, ningit.*

2*d*, When we mean to express an *effect*, without any reference to its *cause;* or to state a truth which is self-evident, or a fact which is universally admitted. Of this class are the following verbs,—*tonat, turbatur, lucet, liquet, constat.* In both of these cases, the origin of impersonal verbs may be easily deduced from *the nature of the thing* which the verb is employed to express.

With respect to a large proportion of impersonal verbs, it may be remarked, that although they agree with those now mentioned in their form, they yet approach much nearer to personal verbs in the species of meaning they convey, and in the analogy of their construction. Such are the verbs *pœnitet, decet, oportet,* which differ from other verbs only in this, that they have infinitives for nominatives; and hence the infinitive is called by some grammarians the *noun* of the verb. Now, with respect to all verbs of this description, it is evident, that their origin cannot be explained upon Mr. Smith's principle, (to wit, the difficulty of making a metaphysical separation between the subject and the action,) for a separation perfectly analogous takes place between the idea expressed by the infinitive, and that expressed by the impersonal verb.

In deciding upon the order in which the different parts of the verb were invented, a great deal must undoubtedly be left to conjecture; and of the various hypotheses that may be formed on the subject, there is perhaps none which, in point of probability, possesses such a decided advantage over the others, as to unite all suffrages in its favour. Mr. Smith thinks it natural to suppose, that verbs would first be made use of in the third person singular. To this opinion he was led by his

position, which I formerly animadverted upon, that all verbs were originally impersonal; and that they became personal by the division of the event into its metaphysical elements. In proof of this he observes, that "in the ancient languages, whenever any verb is used impersonally, it is always in the third person singular. The termination of those verbs, which are still always impersonal, is constantly the same with that of the third person singular of personal verbs. The consideration of these circumstances, joined to the naturalness of the thing itself, may serve to convince us that verbs first became personal in what is now called the third person singular."[1]

For my own part, I am strongly inclined to agree with Leibnitz, the President de Brosses,[2] and Court de Gebelin, in thinking it probable, that the *first* of the tenses (or what grammarians call the *root* of the verb) was the imperative. The last of these writers, in particular, has supported this opinion by some considerations which appear to me equally ingenious and solid.[3] But on this very questionable point I must not enlarge.

It is somewhat remarkable, that, in this review of the origin of the parts of speech, no notice is taken of *conjunctions;* the metaphysical nature of which furnishes as curious a subject of discussion as that of any of the others. Some eminent gram-

[1] *Theory of Moral Sentiments*, vol. ii. p. 441.

[2] *Traité de la Formation Mécanique des Langues*, 1765.

[3] "Avant qu'on pût penser à l'avenir ou qu'on cherchât à se rappeler le passé, il fallut pourvoir au moment présent; car comment se rappeler l'un ou rêver à l'autre, tandis qu'on eût été agité du plus pressant besoin, celui de pourvoir au moment? Le premier soin des hommes fut donc de réunir leurs efforts pour se procurer ce qui leur étoit indispensable pour la vie; tel dut donc être le but de leurs premiers discours.

* * * *

"Les verbes commencèrent donc par *l'impératif*, par ce tems qui dit de la manière la plus courte et la plus prompte, ce qu'on doit faire: car dans les choses pressées et où il faut exécuter sur le champ, on ne sauroit chercher de longs discours; et ce n'est pas dans le besoin qu'on s'amuse à haranguer.

"Aussi l'impératif est-il comme les discours des muets; à peine est-il au-dessus du geste: il est comme lui isolé, décousu, l'affaire de l'instant, un simple son, comme l'autre est un simple mouvement; presque toujours composé d'une seule syllabe. . . . *Ama*, aime; *Lege*, lis; *Dic*, dis; *Fer*, porte; sont plus courts qu'aucun autre tems de ces verbes."—*Monde Primitif*, &c., par M. Court de Gebelin, 1774; vol. ii. p. 240, *et seq.*

marians (in order probably to elude the difficulty of explaining them) deny them to be parts of speech, and insist that they are only the *mortar which cements the other parts of speech together;* while others, in farther prosecution of the same idea, call them the *nails and pegs of discourse.* My own opinion is, that they were first explained in a satisfactory manner by Mr. Horne Tooke, in a letter addressed to Mr. Dunning in 1778;[1] the substance of which pamphlet he has since expanded into a large work, under the title of *The Diversions of Purley.*

The first conjunction to which Tooke turned his attention was the conjunction *that,* which he affirmed to be only a particular mode of using the article or pronoun of the same name, and consequently not to belong to a specifically different class of words. A few examples will sufficiently illustrate the scope of this theory.

Example.—"I wish you to believe THAT I would not wilfully hurt a fly."

Resolution.—"I would not wilfully hurt a fly, I wish you to believe THAT" (assertion.)

Example.—"Thieves rise by night, THAT they may cut men's throats."

Resolution.—"Thieves may cut men's throats, (for) THAT (purpose) they rise by night."

"After the same manner may all sentences be resolved, where the supposed conjunction THAT (or its equivalent) is employed; and by such resolution it will always be discovered to have merely the same force and signification, and to be in fact nothing else but an article.

"And this is not the case in English alone, where THAT is the only conjunction of the same signification which we employ in this manner; but this same method of resolution takes place in those languages also, which have different conjunctions for this same purpose; for the original of my last example (where

[1] *A Letter to John Dunning, Esq.,* by Mr. Horne. London, printed by J. Johnson, St. Paul's Church-Yard, 1778.

UT is employed, and not the Latin neuter article QUOD) will be resolved in the same manner.

'UT jugulent homines surgunt de nocte latrones.'

"For though Sanctius, who struggled so hard to withdraw QUOD from amongst the conjunctions, still left UT amongst them without molestation; yet is UT no other than the Greek article ὅτι, adopted for this conjunctive purpose by the Latins, and by them originally written UTI: the *o* being changed into *u*, from that propensity which both the ancient Romans had, and the modern Italians still have, upon many occasions, to pronounce even their own *o* like a *u*; of which I need not produce any instances. The resolution, therefore, of the original will be like that of the translation.

'Latrones jugulent homines, (AI) ὅτι surgunt de nocte.'"

It must be owned that this doctrine has, on a superficial view, very much the appearance of a quibble; and as it was first broached by the ingenious author to help out an argument against a decision of a court of law, it was very generally classed with his other political eccentricities; nor was it till the publication of *The Diversions of Purley*, that it began to attract the attention of the learned. A few philosophers, however, were early struck with the very remarkable fact asserted by Mr. Tooke, that in *all* languages an article or pronoun should be used for this very conjunction. The conditional conjunction *if* or *gif* he also affirmed to be the imperative of the Saxon verb *gifan*, to grant: *an*, another conditional conjunction now gone into desuetude in England, but still used in some parts of Scotland in the same sense with *if*, to be the imperative of *anan*, to grant; and in general, all conditional conjunctions to be the imperative of some verb equivalent to give, grant, be it, suppose, allow, permit, suffer.

Nor did he confine his theory to conditionals, but asserted, in unqualified terms, that it applies to all those words which we call conjunctions of sentences.[1] The illustrations which

[1] *Letter to Mr. Dunning*, p. 16.

Tooke produced of these positions, form one of the most curious grammatical speculations that have yet been given to the world: Nor do I know of any one which is entitled, in a greater degree, to the praise of originality. Bishop Wilkins, indeed, (as Tooke candidly acknowledged,) had, more than a century before, foretold great discoveries in this branch of grammar; but what he has said is so very general, that it does not detract in the least from the merit of the writer by whom the prediction was verified.[1]

Of all the authors I have looked into, prior to Mr. Tooke, Court de Gebelin approaches nearest to the truth. In some passages he appears to have been on the point of anticipating Tooke's brilliant discovery; particularly in his observations on the conjunction *que*.

"Les grammairiens ont supposé que nous avions dans notre langue un grand nombre de *que* différens; qu'il y en avoit de conjonctifs, de comparatifs, d'exclamatifs: ils ont encore reconnu un *que* et un *qui* relatifs, absolument différens de tous ceux-là, puisque ces premiers sont indéclinables, et que ceux-ci se déclinent, sur-tout dans la langue Latine.

"Mais comme la déclinabilité n'est qu'un accessoire, elle ne peut être un motif suffisant pour regarder tous ces *que*, même les relatifs comme des mots différens. Disons donc qu'il n'en existe qu'un seul, qui offre toujours le même sens, cette valeur déterminative qui constitue la conjonction *que:* en ramenant ainsi tous ces *que* à cet unique principe, leur explication qui parut toujours si embarrassée et si peu satisfaisante, devient de la plus grande simplicité et de la plus grande clarté."[2]

On perusing, however, with attention the explanations which follow, we perceive that this learned writer has completely missed Mr. Tooke's idea; and that, when he seems prepared to pursue the right road, he suddenly strikes off into a most unpromising bye-path of his own. So completely do the two routes diverge, that while Tooke resolves the conjunction *que* into the relative of the same name, Court de

[1] *Letter to Mr. Dunning*, p. 21.

[2] *Monde Primitif*, vol. ii. p. 336.

Gebelin attempts to resolve the relative into the conjunction. For example:

"Le livre *que* vous m'avez envoyé est très-intéressant.

"L'auteur *que* vous citez est un excellent juge sur cet objet."

These sentences he resolves thus:

"Vous m'avez envoyé un livre, et je trouve *que* ce livre est très-intéressant: Vous citez un auteur, et je trouve *que* cet auteur est un excellent juge sur l'objet en question."[1]

After expressing myself in so high terms with respect to the merits of Tooke's grammatical speculations, I think it necessary to add, that the author himself does not appear to me to have formed a very accurate or just idea of the nature and import of his own *discoveries*. The leading inference which he always deduces from them is, that the common arrangements of the parts of speech in the writings of grammarians are inaccurate and unphilosophical; and that they must contribute greatly to retard the progress of students in the acquisition of particular languages; whereas, in point of fact, Tooke's speculations do not relate in the least to the analysis of a language after it attains to a state of maturity, but to the progressive steps by which it advances to that state. They are speculations not of a metaphysical, but of a purely philological nature; belonging to that particular species of disquisition which I have elsewhere called *theoretical* or *conjectural* history. In a word, they are speculations precisely similar to those contained in Mr. Smith's dissertation, and may be justly regarded as a

[1] *Monde Primitif*, vol. ii. p. 338.

The second volume of Court de Gebelin's work, containing the *Grammaire Universelle*, was published in 1774. Horne Tooke's *Letter to Mr. Dunning* was published in 1778.

The mention of this last date recalls to my recollection a fact, which, in justice to myself, I cannot forbear to notice; that the extraordinary grammatical merits of the letter to Mr. Dunning were pointed out a few months after its publication in a course of lectures on Moral Philosophy, which (at a very early period of my life, and while still Professor of Mathematics) I delivered in the University of Edinburgh, during the absence of Dr. Ferguson in North America. I record this trifling circumstance, as I have been most unjustly accused of having spoken lightly of Mr. Tooke's literary merits in one of my former publications."—[To wit, *Philosophical Essays*, *infra Works*, vol. v.]

supplement to that essay.[1] To prove that conjunctions are a derivative part of speech, and that, at first, their place was supplied by words which were confessedly *pronouns* and *articles*, does not prove that they ought not to be considered as a separate part of speech at *present;* any more than Mr. Smith's theory with respect to the gradual transformation of proper names into appellatives, implies that proper names and appellatives are now radically and essentially the same; or, than the employment of substantives to supply the place of adjectives, (which Mr. Tooke himself tells us is one of the signs of an imperfect language,) proves that there is no difference between these two parts of speech in such tongues as the Greek, the Latin, or the English.[2]

[1] *Biographical Memoirs of Smith, Robertson, and Reid*, p. 46, *et seq.* [*Infra*, vol. ix.]

[2] As the book referred to in the foregoing note may not have fallen in the way of some of the readers of this volume, I beg leave to copy from it one or two paragraphs, which I flatter myself will throw considerable light on the scope of the preceding observations.

"In examining the history of mankind, as well as in examining the phenomena of the material world, when we cannot trace the process by which an event *has been* produced, it is often of importance to be able to show how it *may have been* produced by natural causes. Thus, although it is impossible to determine with certainty what the steps were by which any particular language was formed, yet if we can show, from the known principles of human nature, how all its various parts might gradually have arisen, the mind is not only to a certain degree satisfied, but a check is given to that indolent philosophy which refers to a miracle whatever appearances, both in the natural and moral worlds, it is unable to explain.

"To this species of philosophical investigation, which has no appropriate name in our language, I shall take the liberty of giving the title of *Theoretical* or *Conjectural History;* an expression which coincides pretty nearly in its meaning with that of *natural history*, as employed by Mr. Hume, (see his *Natural History of Religion*,) and with what some French writers have called Histoire Raisonnée."

* * * *

"I shall only observe farther on this head, that when different theoretical histories are proposed by different writers of the progress of the human mind in any one line of exertion, these theories are not always to be understood as standing in opposition to each other. If the progress delineated in all of them be plausible, it is possible, at least, that they may all have been realized; for human affairs never exhibit, in any two instances, a perfect uniformity. But whether they have been realized or no, is often a question of little consequence. In most cases, it is of more importance to ascertain the progress that is most simple, than the progress that is most agreeable to fact; for, paradoxical as the proposition may appear, it is cer-

OF THE ORIGIN AND HISTORY OF LANGUAGE.

PART II.

In the sequel of Mr. Smith's dissertation he treats of compounded languages, and of the circumstances in which their genius differs from that of languages which are simple and original. In prosecuting this subject, his remarks are so much less open to criticism than in the former part of his theory, that I shall do little more, in what follows, than offer a short summary of his leading positions, accompanied with some additional illustrations of my own.

From the observations made by Mr. Smith in the first part of his *Essay*, it follows that original languages can scarcely fail to be very complicated in their declensions and conjugations; a circumstance which adds much to the difficulty of studying them as a branch of education, but which would not be felt by those who were accustomed to speak them from their infancy. When, however, different nations came to mingle together, in consequence of conquest or migration, the necessity of acquiring each other's languages would naturally lead them to exert their ingenuity in simplifying the study as much as possible, by whatever shifts the language would afford. Hence, the gradual substitution, in the languages of modern Europe, of prepositions instead of declensions, and of the substantive and possessive verbs instead of conjugations. This observation Mr. Smith has illustrated most ingeniously and happily.

"A Lombard who was attempting to speak Latin, would naturally supply his ignorance of declensions by the use of prepositions, and if he wanted to express that such a person was a citizen of Rome, or a benefactor to Rome, if he happened not

tainly true, that the real progress is not always the most natural. It may have been determined by particular accidents, which are not likely again to occur, and which cannot be considered as forming any part of that general provision which nature has made for the improvement of the race."—*Biographical Memoirs of Smith, Robertson, and Reid.* Edin. 1811, pp. 48, 49, 53, 54.

to be acquainted with the genitive and dative cases of the word *Roma*, would naturally express himself by prefixing the prepositions *ad* and *de* to the nominative; and, instead of *Romæ*, would say *ad Roma*, and *de Roma*. *Al Roma* and *di Roma*, accordingly, is the manner in which the present Italians, the descendants of the ancient Lombards and Romans, express this and all other similar relations. And, in this manner, prepositions seem to have been introduced in the room of the ancient declensions. The same alteration has been produced upon the Greek language, since [and long before] the taking of Constantinople by the Turks.

"A similar expedient enables men, in the situation above-mentioned, to get rid of almost the whole intricacy of their conjugations. There is in every language a verb, known by the name of the substantive verb; in Latin, *sum;* in English, *I am*. This verb denotes not the existence of any particular event, but existence in general. It is, upon this account, the most abstract and metaphysical of all verbs; and, consequently, could by no means be a word of early invention. When it came to be invented, however, as it had all the tenses and moods of any other verb, by being joined with the passive participle, it was capable of supplying the place of the whole passive voice, and of rendering this part of their conjugations as simple and uniform as the use of prepositions had rendered their declensions. A Lombard, who wanted to say, *I am loved*, but could not recollect the word *amor*, naturally endeavoured to supply his ignorance, by saying, *ego sum amatus*. *Io sono amato*, is at this day the Italian expression, which corresponds to the English phrase above-mentioned.

"There is another verb, which, in the same manner, runs through all languages, and which is distinguished by the name of the possessive verb; in Latin, *habeo;* in English, *I have*. This verb, likewise, denotes an event of an extremely abstract and metaphysical nature; and, consequently, cannot be supposed to have been a word of the earliest invention. When it came to be invented, however, by being applied to the passive participle, it was capable of supplying a great part of the active

voice, as the substantive verb had supplied the whole of the passive. A Lombard, who wanted to say, *I had loved*, but could not recollect the word *amaveram*, would endeavour to supply the place of it, by saying either *ego habebam amatum*, or *ego habui amatum*. *Io aveva amato*, or *Io ebbi amato*, are the correspondent Italian expressions at this day. And thus, upon the intermixture of different nations with one another, the conjugations, by means of different auxiliary verbs, were made to approach towards the simplicity and uniformity of the declensions.

"In general, it may be laid down for a maxim, that the more simple any language is in its composition, the more complex it must be in its declensions and conjugations; and, on the contrary, the more simple it is in its declensions and conjugations, the more complex it must be in its composition."

This general observation Mr. Smith confirms by particular instances, for which I must refer to his dissertation.

The circumstances pointed out by Mr. Smith as discriminating the Greek and Latin languages from the French, the Italian, and the English, have given rise to some remarkable differences between the genius of ancient and modern tongues, considered both as materials for agreeable composition, and as instruments of Philosophical communication. I shall touch on one or two of these characteristical differences as briefly as possible.

1*st*, In consequence of the inflections of nouns and verbs which supersede the use of prepositions and of auxiliary verbs, the ancient languages possessed a great advantage over the modern, in point of *conciseness*. The words, *Dei* and *Deo*, for example, expressed, each of them, what in English must be translated by *two* words, *of God*, *to God*. The difference is still greater with respect to conjugations. What a Roman expressed by the single word *amavissem*, an Englishman is obliged to express by *four* words, *I should have loved*. It is in a great measure owing to this, that in epitaphs and other inscriptions, where the shortness of the work requires the most finished elegance, the use of the modern languages is almost

intolerable to those who are acquainted with the beauties of which the ancient tongues are susceptible, in consequence of the rejection of everything superfluous and cumbersome.

Dr. Campbell has illustrated this advantage, which the ancient tongues possessed over the modern in point of *conciseness*, by the difficulty of translating any of the common Latin mottos (or what the French call *devises*) into a modern language, without destroying completely their spirit and vivacity. In the motto, for example, *non mille quod absens*, how spiritless is the English translation, "*A thousand cannot equal one that is absent.*" Another instance mentioned by Campbell, is that of a rock in the midst of a tempestuous sea; to denote a hero, who, with facility, baffles all the assaults of his enemies; the motto *Conantia frangere frangit;* in English, "I break the things which attempt to break me."[1] All European languages labour under the same inconveniences.

2*d*, The structure of the ancient languages allowed a latitude in the arrangement of words, of which modern languages do not admit. The structure of the latter ties us down to one invariable arrangement, or, at least, confines our choice within very narrow limits. In the Greek and Latin, though the adjective and substantive were separated from one another, the correspondence of their terminations still showed their mutual reference; and the separation did not occasion any confusion in the sense. Thus, in the first line of [the first Eclogue of] Virgil,

"Tityre, tu patulæ recubans sub tegmine fagi,"

we easily see, that *tu* refers to *recubans*, and *patulæ* to *fagi*, because the terminations determine their mutual reference. But if we were to translate this line literally into English,

[1] "In this example," says Campbell, "we are obliged to change the person of the verb, that the words may be equally applicable, both in the literal sense and in the figurative, an essential point in this exercise of ingenuity. The personal pronoun in our language must always be expressed before the verb. Now the neuter will not apply to the hero, nor the masculine *He* to the rock; whereas the first person applies equally to both."—*Philosophy of Rhetoric*, vol. ii. p. 411, Note.

"Tityrus, thou of spreading reclining under the shade beech," it would be perfectly unintelligible, because there is here no difference of termination to indicate to what substantive each adjective belongs. The case is the same with the verbs. In Latin, the verb may often be placed without any ambiguity in any part of the sentence. But, in English, its place is almost always precisely determined. It must follow the *subjunctive*, and precede the *objective* member of the phrase in almost all cases. Of this, no better illustration can be produced than the following passage from Milton, quoted by Mr. Smith, in which the poet has pushed the inversion and transposition of words so far beyond the genius of our language, as to render his meaning, if not altogether unintelligible, at least extremely obscure to those who are not acquainted with the lines in Horace, of which it is a translation:—

> "Who now enjoys thee credulous, all gold,
> Who always vacant, always amiable,
> Hopes thee of flattering gales unmindful."[1]

In the Latin, all this is abundantly plain:—

> "Qui nunc te fruitur credulus aurea,
> Qui semper vacuam, semper amabilem
> Sperat te; nescius auræ fallacis."*

These remarks of Mr. Smith are important, and, at the time of their publication, they had, at least, in this country, all the merit of novelty; but they do not exhaust the subject, and, therefore, I shall take the liberty of following out the speculation a little farther.

In considering this difference between the genius of ancient and modern languages, two things are to be attended to, which

[1] Lord Monboddo is of opinion that Milton intended this translation to serve as a proof how inferior, in point of composition, the English is to the Latin.—(*Origin and Progress of Language*, vol. i. p. 130.) But this is by no means probable. Milton in his greatest poetical work, and still more remarkably in his prose writings, has shown a disposition to assimilate the style of English composition to that of the Latin, in a far greater degree than suits the genius of our language. This translation, which must undoubtedly be considered as a sort of *tour de force*, seems to have been meant to show, that the English tongue is susceptible of a much greater latitude of transposition than is commonly imagined.

* [Od. i. 5, 9.]

have been often confounded by critics. 1*st*, The ordinary arrangement of words in common conversation. And, 2*d*, the deranged collocation in rhetorical and poetical composition. The first of these has been very well considered by *Batteux*[1] and *Monboddo*;[2] both of whom have shown, that the arrangement of words, in the ancient tongues, was, in some respects, more *natural* than in ours; that the sentence *fructum da mihi* (for example) is, in one view, arranged more naturally[3] than the sentence *give me fruit*.[4] But this and similar observations

[1] *Principes de Littérature*, vol. v.

[2] *Origin and Progress of Language.*

[3] "Such an arrangement" (as Dr. Blair observes, Lecture VII.) "is precisely putting into words the gesture which nature taught the savage to make, before he was acquainted with words;"—that is, he would *first* point to the object, and *then* to himself.

It appears from Humboldt, that this *natural* arrangement prevails in the languages of the American Indians, which are certainly as well entitled as any we know, to the appellation of *original* or *primitive*. "The arrangement of words," he observes, "in the Chayma, is such as is found in every language of both continents which has preserved a certain air of youth. The object is placed before the verb, the verb before the personal pronoun. The object on which the attention should be principally fixed, precedes all modifications of that object. The American would say, *liberty complete love we;* instead of, we love complete liberty:—*thee with happy am I;*, instead of, I am happy with thee. There is something direct, firm, demonstrative, in these turns, the simplicity of which is augmented by the absence of the article. Ought we to admit that, with an advanced civilisation, these nations, left to themselves, would have changed by degrees the arrangement of their phrases? We are led to adopt this idea, when we recollect the changes which the syntax of the Romans has undergone, in the precise, clear, but somewhat timid languages of Latin Europe."—(*Personal Narrative*, &c. vol. iii. p. 261.) I quote from the admirable English version by Helen Maria Williams. Such a translator, faithful, at once, and elegant, falls to the lot of few authors.

[4] See on the same subject, Diderot's *Lettre sur les Sourds et Muets.*

On the subject of inversions Diderot has made a very ingenious remark, which deserves to be prosecuted.

"Nous sommes peut-être redevables à la philosophie Péripatécienne, qui a réalisé tous les êtres généraux et Métaphysiques, de n'avoir presque plus dans notre langue de ce que nous appelons des inversions dans les langues anciennes. En effet nos auteurs Gaulois en ont beaucoup plus que nous, et cette philosophie a régné tandis que notre langue se perfectionnoit sous Louis XIII. et sous Louis XIV. Les Anciens, qui généralisoient moins, et qui étudioient plus la Nature en détail et par individus, avoient dans leur langue une marche moins monotone, et peut-être le mot d'inversion eût-il été fort étrange pour eux. Vous ne m'objecterez point, ici, Monsieur, que la Philosophie Péripatécienne est celle d'Aristote et par conséquent d'une partie des anciens; car vous apprendrez sans doute à vos disciples que notre Péri-

throw no light on the deranged collocation familiar to us in the classical authors, and which was regulated by principles of a perfectly different nature. What these principles were, it is impossible for us now to ascertain; but, in general, we know, that although the latitude of arrangement was great, it was not unlimited. Quintilian produces some instances of inversions, which he thinks blameable, that would scarce appear to us inversions at all. The following sentence in Cicero, pro Cluentio, he thinks, needs an apology: "*Animadverti Judices, omnem accusatoris orationem in duas divisam esse partes.*—In duas partes divisam esse, rectum est, sed durum et incomptum." Some transpositions, he says, are entirely peculiar to poetry, and are not admissible in prose; as in Virgil, "*Hyperboreo septem subjecta Trioni:*—quod oratio," he adds, "nequaquam recipiet."*

Although, however, these passages show clearly that the collocation of words in the ancient languages was an affair of much greater nicety than our modern composers in Latin are apt to imagine; it is abundantly obvious, on the other hand, that the writers and speakers who made use of them, enjoyed a latitude in the construction of their sentences, to which there is nothing which can be compared in the languages of modern Europe.

It is easy to conceive how much this latitude in the arrangement of words must have contributed to the harmony and variety of style in ancient composition. But a still more important advantage arose from this, that it enabled the writers or speakers to arrange the different ideas comprehended in a sentence, in that order which is most pleasing to the imagination, or which produces the happiest effects. The following line is mentioned by Batteux as an illustration of this remark:—

"Me, me,—adsum qui feci,—in me convertite ferrum
O Rutuli."†

The order of words here corresponds exactly with the order of passions or emotions in the mind of the speaker, and gives a

patéticisme étoit bien différent de celui d'Aristote."

* [*Instit. Orat.* L. viii. c. 6.]

† [Aen. ix. 427.]

spirit to the expression, which it is impossible to preserve in a modern translation. In the following passage, too, of Horace, the mere arrangement of words, particularly the position of the concluding word, produces a pathetic effect which must unavoidably be lost in any English or French version :—

"Te maris et terræ numeroque carentis arenæ
Mensorem cohibent, Archyta,
Pulveris exigui prope littus parva Matinum
Munera: nec quidquam tibi prodest
Aërias tentasse domos, animoque rotundum
Percurrisse polum, *morituro*." *

The only other instance I shall mention is the arrangement of the words which Virgil puts in the mouth of Eurydice,

"Feror ingenti circumdata nocte,
Invalidasque tibi tendens, heu! non tua, palmas."†

Well might Marmontel ask, "Delille a-t-il pu faire entendre ce *non tua* désespérant?"[1] And yet (with the exception of the worse than useless epithet applied to death) Delille seems to have succeeded as well as the genius of the French tongue admitted of:—

"Adieu mon cher Orphée; Eurydice expirante
En vain te cherche encore de sa main défaillante.
L'horrible mort jetant son voile autour de moi
M'entraîne loin du jour, hélas! et loin de toi."

Even in the modern tongues the slight inversions of which they admit have sometimes a singularly happy effect, particularly in poetry, as in these words of Milton, the force and vivacity of which need no comment:—

"*Out flew*—millions of flaming swords."[2]

Upon this head of *transposition* we may remark further, that

* [Od. i. 28, 1.]

† [Georg. iv. 497.]

[1] *Œuvres Posthumes de Marmontel*, tom. i. p. 322.

[2] A similar beauty is observable in the following lines of Parnell's *Hermit*:

"Thus when a smooth expanse receives imprest
Calm nature's image on its wat'ry breast,
Down bend the banks, the trees *depending* grow,
And skies beneath with answering colours glow."

In that fine line, too, of Gray,

"Where *heaves* the turf in many a mouldering heap."

With what picturesque force does the

in consequence of the order observed in the ancient languages, more especially the Latin, the attention of the reader or hearer was kept up completely to the end of the period, where the *verb*, which is the key of the sentence, was generally to be found. I have elsewhere compared the effect produced by this position of the verb to that of the mirror in a well-known optical experiment, by which the apparently shapeless daubings in an *anamorphosis* are so *reformed* as to be converted into a beautiful picture.

Quintilian tells us, that every transgression of this rule was a deviation from the established habit of arrangement.—"Verbo sensum cludere, multo, si compositio patiatur, optimum est. In *verbis enim sermonis vis inest.*" He adds, "Sine dubio omne quod non cludet, hyperbaton est."* In our modern languages, the first half of a sentence is no sooner pronounced, than the rest may be anticipated; and hence it is impossible for a modern discourse to maintain that incessant hold of the hearer's attention which was secured by the nature of the languages in which the ancient orators spoke: nor is it possible, to the same degree, to give to every word and phrase their full effect on the imagination or the heart. The ancients compared the *period* (which word (*Περίοδος*) literally means a circuit) to a sling which throws out the stone after many revolutions; and Cicero ascribes to this skilful combination of words a great part of the effects produced by the eloquence of Demosthenes. "Demosthenis non tam vibrarent fulmina, nisi numeris contorta ferentur."[1]

inverted position of the verb *heaves* present the image of the broken ground in a crowded church-yard!

The same artifice is employed in various other passages of this elegy, and always with consummate taste and skill.

"Now *fades* the glimmering landscape on the sight."

"How *wav'd* the woods beneath their sturdy stroke!"

"Even in our ashes *live* their wonted fires."

"Here *rests* his head upon the lap of earth,
A youth—."

* [*Instit. Orat.* L. ix. c. 4.]

[1] *Orator ad Brutum*, c. lxx.

I must own, however, that Lord Monboddo seems to me to consider, not without reason, this general rule in Latin composition with respect to the position of the verb, as necessarily tending to produce a monotony in the style of their best writers. To illustrate this, he quotes two sentences from the beginning of Cæsar's *Commentaries*, where not only both sentences terminate with a verb, but in general the several

I already hinted, that the deranged collocation of words in the rhetorical compositions of the ancients, was perfectly different from what they themselves considered as the *natural* order, and which they used in conversation. Of this we may judge from their easy epistolary style, and from that of their dialogues, in which (even in those written by Cicero) there is not nearly so much of inversion and transposition as in their histories and orations. Lord Monboddo observes, that "in Cicero's *Letters ad Familiares*,[1] the arrangement is such, that the words may be translated into English, in an order not very different from that in which they stand in the original." The same author takes notice of "the simple and natural arrangement of the words employed in the laws and decrees both of the Greeks and the Romans." In Demosthenes we have several of these inserted in his orations, where the arrangement of the words is very different from what it is in the composition of the orator. The same inartificial order of words may be remarked in the Roman laws, or *senatus consulta*, and in the edicts of their prætors preserved to us in the collection of their laws made by the Emperor Justinian.[2]

It is easy to conceive, from what was formerly said on the *Association of Ideas*, how much this specific distinction between the ordinary and the rhetorical or poetical style of expression, must have contributed to the elevation and to the grace of the latter; as it enabled the orator or the poet, without enlarging the common vocabulary, to give to the simplest words and phrases the same effects which we strive to produce by an appropriate poetical or rhetorical diction. This I presume was Horace's idea, in a passage of his *Art of Poetry*, which

members of each sentence. "Horum omnium fortissimi sunt Belgæ, propterea quod a cultu atque humanitate provinciæ longissime absunt, minimeque ad eos mercatores sæpe commeant, atque ea, quæ ad effeminandos animos pertinent, important." "Proximi sunt Germanis, qui trans Rhenum incolunt, quibuscum continenter bellum gerunt: qua de causa Helvetii quoque reliquos Gallos virtute præcedunt, quod fere quotidianis præliis cum Germanis contendunt, quum aut suis finibus eos prohibent, aut ipsi in eorum finibus bellum gerunt."—*Origin and Progress of Language*, vol. iv. pp. 232, 233.

[1] The 16th book of his *Letters*.

[2] *Orgin and Progress of Language*, vol. iv. pp. 218, 219.

has been the subject of a good deal of dispute among his commentators.

> " In *verbis* etiam tenuis cautusque serendis
> Dixeris egregie, notum si callida verbum
> Reddiderit junctura novum."*

" Cautious and sparing in the introduction of new words, aim rather at giving to your expressions the air of novelty, by skill in composition." In the Greek and Latin languages, but much more in the latter of these, the *callida junctura* must have been one of the principal secrets of fine writing, both in prose and in poetry.[1]

The observations already made are sufficient to show how peculiarly favourable the genius of the ancient languages was to rhetorical and poetical compositions. It is a question, however, of a very different nature, and *one* still more interesting to us, how far it was favourable to the communication of scientific knowledge, and well adapted to the purposes of philosophy.

In general, it may be observed, the same circumstance which gave the ancient languages an advantage in poetry and oratory, rendered them unfit for philosophical communication; for, in proportion as the imagination is excited and captivated, the understanding is disqualified for the investigation of truth. Even those artificial and complicated *periods*, which the genius

* [Verse 45, *seq.*]

[1] Dr. Beattie, in some critical remarks on these lines, supposes the poet's meaning to be, that, when we find it necessary to introduce a new word, we should be careful to place it in such a manner, that its meaning may be collected from the connexion in which it stands. He acknowledges, at the same time, that this idea would have been conveyed much more directly and explicitly, if the words *novum* and *notum* had been made to change places.

> " Novum si callida verbum
> Reddiderit junctura notum."

" But this," says he, " was impossible, the first syllable in *novum* being short, and in *notum* long." I cannot help thinking this a very lame solution of the difficulty, when we consider with what facility Horace (who was not tied down to ring changes on this particular form of words like a school-boy performing an exercise) could have varied his mode of expression a thousand different ways, without either departing from metrical exactness, or incurring the fault of indistinctness and ambiguity. Indeed, I have no doubt, whether we consult the context, or the grammatical interpretation of the sentence, that the poet's idea was what I have above stated.

of the ancient languages admitted to so great a degree, and of which Cicero has remarked the extraordinary effects, derived their principal charm from their tendency to suspend the cool exercise of the judgment, by arresting the imagination, or inflaming the passions. And, accordingly, the style of speaking which, in modern times, has been formed on this model, however well fitted to help out a lame argument, or, as Milton expresses it, *to make the worse appear the better reason*, is neither found to be the best for meeting, in a popular assembly, the close attack of a logical antagonist, nor for undergoing, when committed to the press, the calm examination of a discerning reader.[1]

But this is not all. The *transpositions* used in ancient languages could not fail to counteract those habits of *association* among *words*, which, in most instances, are the foundation of our reasonings, and which afford us the readiest means of detecting the erroneous reasonings of others. For the illustration of this remark I must refer to Dr. Campbell's *Philosophy of Rhetoric*,[2] where the reader will find it fully confirmed by a train of most ingenious and refined reasoning. These associations must, of necessity, be much stronger in a language which is tied down to an *analogous* construction, than in one where a *transpositive* construction is admitted;[3] and it is

[1] *Omnia enim stolidi magis admirantur, amantque,*
Inversis quæ sub verbis latitantia cernunt;
Veraque constituunt, quæ bello tangere possunt
Aureis, et lepido quæ sunt fucata sonoro.
Lucretius, Liber i. l. 642.

[2] Vol. ii. p. 93.

[3] The Abbé Girard was the first, according to Court de Gebelin, who introduced these two distinguishing epithets; and as the use of them has been sanctioned very generally by later French Grammarians, and as I can think of no others that appear to me to be less exceptionable, I shall continue to employ them. M. Du Marsais, in his Treatise *De la Construction Grammaticale*, substitutes, instead of the epithet *analogous*, the word *simple*, or *natural*.* Gebelin objects to the language used both by Girard and Du Marsais, as prejudging a question which he considers as problematical, and substitutes two epithets of his own, (construction *libre* and construction *locale*,) which, in my opinion, have no advantage over them. As his criticisms, however, are always entitled to respect, I shall transcribe them in his own words.

"En donnant à la construction Françoise ou à celle de telle autre langue que ce soit, le nom *d'analogue*, on suppose

* Court de Gebelin, tom. ii. pp. 511, 512.

owing to this that we are much more easily imposed on by nonsense in Latin than in English, although we may understand both languages equally well.

Beside these considerations, it might be easily shown, that the genius of the ancient languages occasioned many more ambiguities of meaning than occur in the modern ones. In confirmation of this remark, some judicious observations are made in an Essay by the late Professor Arthur of Glasgow;[1] whose remarks, added to those already stated, seem to authorize the general conclusion, that if, in respect of conciseness, of harmony, and of impressive arrangement, the modern tongues must yield to the ancient—in other respects, and those of far greater moment, they possess a decided superiority.

I shall conclude this subject with observing, that the modern compounded languages, though more easily acquired, furnish more difficult subjects of discussion to the universal grammarian than original languages. The difference between their structure, and that of the ancient tongues, has had a great effect in turning the attention of philosophers to grammatical

qu'elle a plus d'analogie, de conformité, de rapport avec la nature, et qu'elle est la construction la plus parfaite: et en donnant à la construction Greque et Latine le nom de *transpositive*, on fait entendre que celle-ci intervertit l'arrangement naturel des mots, qu'elle donne lieu à un ordre opposé à celui de la nature. On suppose encore par-là, que la nature a un ordre fixe qui lui est propre, et dont elle ne peut jamais s'écarter; qu'elle est déterminée invinciblement à suivre la même route.

"Mais ces questions ont elles été décidées? Pouvoient elles l'être, du moins dans le tems où l'on commença à donner ces noms tranchans? ne précipita-t-on pas son jugement, d'après la différence qu'on voyoit entre ces deux sortes de constructions? et ces noms ne pouvoient-ils pas induire en erreur, en persuadant qu'en effet le Latin renversoit l'ordre de la nature auquel se soumettoient nos langues modernes?"—Tom. ii. pp. 501, 502.

In answer to these objections, I have only to refer the reader to the distinction pointed out in p. 49, between the ordinary arrangement of words in common conversation, and the deranged collocation in rhetorical and poetical composition. In the former case, (for example, in the phrase *fructum da mihi*, or *give me fruit*,) I admit there is room for disputes which may not be easily settled; but in the latter, I cannot see the possibility of any. Nobody surely can imagine the structure of one of Cicero's oratorical periods to be as *natural* as that of a sentence of Addison or Voltaire.

[1] *Essay on the Arrangement of Ancient and Modern Languages.*—See Arthur's *Discourses on Various Subjects.* Glasgow, 1803.

disquisitions, and in this manner has contributed considerably, in the present age, to the improvement of the philosophy of the human mind.

A German gentleman, well known in the learned world,[1] who did me the honour, more than twenty years ago, to attend some of my lectures in the University of Edinburgh, having heard one of them, in which I gave a general account of this dissertation of Mr. Smith, was so kind as to favour me in a Letter with some strictures, which appear to me unquestionably just, on the latter part of Mr. Smith's Essay. "In comparing," he observes, "the ancient and modern languages, Mr. Smith ought to have expressed himself under certain limitations with regard to the latter. For the genius of the 'modern languages,' if we comprehend, under this title, those existing among the civilized nations of Europe, is very different. The German, for instance, has several striking peculiarities, which, in the strongest manner, distinguish it from others. It is, in some respects, more complicated in point of grammatical structure than the Greek or the Latin; but the most remarkable characteristic is the arrangement of words, which, though widely different from the natural order of construction, is yet limited and determined by certain rules.

"The artificial arrangement of the parts of speech in the German language is not unworthy the attention of a philosopher; it is perhaps a disadvantage in philosophical inquiries, and it might be suggested with some plausibility, that the obscurity of Kant's system is, in some degree, to be attributed to the language in which he wrote; though I am by no means decided as to this point. So much is certain, that Plattner, an eminent philosopher in Germany, conceived that artificial order of placing the parts of speech to be unfavourable to the purpose of philosophy; and that he gave a determined preference

[1] Dr. Nochden, of the University of Goettingen, author of that highly esteemed work, entitled, *A Grammar of the German Language for the use of Englishmen.*

to a natural collocation of words. He went so far as to attempt to introduce the latter in opposition to the general established practice. But this is in the highest degree contrary to the habits of the people of Germany, insomuch so, that his books in which the natural arrangement of words is adopted, appear hardly legible. I have often turned from them with displeasure, and even disgust; and found it a greater labour to read and understand him, than more difficult subjects would have given me, if delivered in the usual form of arrangement."—The reader will find the subject farther prosecuted in the second edition of Dr. Noehden's *Grammar*.[1]

It is scarcely necessary to add, that this criticism of Dr. Noehden's is not meant to invalidate Mr. Smith's argument, but to suggest some necessary limitations of the terms in which it has been announced by the author. It tends, on the contrary, powerfully to support Mr. Smith's speculations ;* inasmuch as the German or Teutonic, falling obviously under Mr. Smith's idea of an original language, might be expected to differ in its construction from the Romanic tongues, as well as from the English, which, though it has Teutonic for its basis, has subsequently admitted largely into its composition Norman-French, —itself a mixture of Latin with the Celtic and Teutonic.

SECTION III.—OF LANGUAGE CONSIDERED AS AN INSTRUMENT OF THOUGHT.

Another view of language, intimately connected with the Philosophy of the Human Mind, has for its object to illustrate the functions of words considered as the great instrument of thought and of solitary speculation. In the importance of its practical applications, *this* may justly claim the *first* place among the various branches of our present subject. Indeed, I do not think I should go too far were I to assert, that if a system of rational logic should ever be executed by a competent

[1] London, printed for Mawman, 1807, p. 129.

* [As is fully shewn by the Brothers Grimm.—*Ed.*]

hand, *this* will form the most important chapter of such a work. All, however, that I have to offer with respect to it is already exhausted in the course of my former publications; and as I am unwilling to tire my reader with repetitions, I shall here content myself with referring, in a note, to those passages in my works where it has happened to fall under my consideration.[1]

When I published my former volumes, I had not seen the ingenious *Essay* of Michaëlis on the *Influence of Opinions on Language, and of Language on Opinions*.[2] The title is imposing, and strongly excited my curiosity; and the performance itself, though it scarcely answered the expectations I had formed of it from the great reputation of the author, may be justly regarded as an acquisition of some value to the Philosophy of the Human Mind. I was sorry, when I first read it, to find that few, if any, illustrations were taken from this branch of science, which certainly presents to a philosopher the most interesting and important of all exemplifications of the mutual influence which language and opinions have on each other; but, on reflection, I was led to indulge a hope, that the illustrations borrowed from sciences relating to the material world, will be turned to good account by the logicians who cultivate the science of mind; for nothing can be more evident than this, that all the conclusions of the author concerning the errors produced by the abuse of words in such sciences as botany and the other branches of natural history, must hold *a fortiori* in all those speculations which have the mental phenomena for their object. As this, however, is an inference not likely to

[1] See *Elements*, &c. vol. i. p. 193, *et seq.*; vol. ii. p. 97, *et seq.*; *Philosophical Essays*, 3d edit., p. 147, *et seq.*, p. 201, *et seq.*, p. 207, *et seq.*, p. 226, *et seq.*, p. 232, *et seq.* [*Infra*, vol. v.]

[2] An English translation of this *Essay* was published at London in the year 1771, by Johnson, in St. Paul's Churchyard; but I never happened to hear of it till very lately, when a copy of it was kindly communicated to me by a friend. I had previously read a French translation, which appears to me to convey the sense of the author more clearly than the English one. The latter, however, (which, we are told in the preface, was revised in manuscript by the author,) is enriched with an Inquiry (by Michaëlis) into the Advantages and Practicability of a Universal Learned Language, which contains some very acute and important observations.

occur to ordinary readers, the subject may be considered as still open to future inquirers, who, after all that has yet been said upon it, will find an ample field for original remarks, as well as for new strictures on the reasonings of their predecessors. It is a topic, indeed, which cannot be pressed too often upon the attention of philosophical students.

With the importance of this *last* subject, considered as a branch of logic, I am so strongly impressed, that I once intended to have brought together, and repeated in this place, the different passages from my former publications above referred to. But the dread of being tedious has induced me to relinquish this design. Two passages alone I beg leave to transcribe, partly as they originally appeared in a different work, and may not, therefore, be known to all my readers; but chiefly as they contain some practical suggestions, of the utility of which I have long had experience. They appear to me, therefore, on both accounts, to have a claim to a place in these *Elements*.

"In speaking of the faculty of memory, (and the same observation may be extended to our other mental powers,) everybody must have remarked how numerous and how incongruous are the similitudes involved in our expressions. At one time we liken it to a *receptacle*, in which the *images* of things are treasured up in a certain order; at another time, we fancy it to resemble a *tablet*, on which these *images* are stamped, more or less deeply; on other occasions, again, we seem to consider it as something analogous to the *canvas* of the painter. Instances of all these modes of speaking may be collected from no less a writer than Mr. Locke. 'Methinks,' says he, in one place, 'the understanding is not much unlike a *closet*, wholly shut up from light, with only some little opening left, to let in external visible resemblances, or ideas, of things without: *Would the pictures coming into such a dark room but stay there, and lie so orderly as to be found upon occasion*, it would very much resemble the understanding of a man, in reference to all objects of sight, and the ideas of them.' In a different part of his *Essay*, he has crowded into a few sentences a variety of such theories, shifting backwards and forwards from one to another, as they

happen at the moment to strike his fancy. 'The memory in some men (he observes) is very *tenacious*, even to a miracle; but yet there seems to be a constant decay of all our ideas, even of those which are *struck deepest*, and in minds the most *retentive;* so that, if they be not sometimes renewed by repeated exercise of the senses, or reflection on those kinds of objects which at first occasioned them, *the print wears out*, and at last there remains nothing to be seen. Thus the ideas, as well as children of our youth, often die before us: and our minds represent to us those tombs to which we are approaching, where, though the brass and marble remain, yet the inscriptions are effaced by time, and the imagery moulders away. *The pictures drawn in our minds are laid in fading colours, and, if not sometimes refreshed, vanish and disappear.*' He afterwards adds, that 'we sometimes find a disease *strip* the mind of all its ideas, and *the flames of a fever, in a few days, calcine all those images to dust and confusion, which seemed to be as lasting as if graved on marble.*' Such is the poverty of language, that it is, perhaps, impossible to find words with respect to *memory*, which do not seem to imply one or other of these different hypotheses; and to the sound philosopher, they are all of them (when considered merely as modes of expression) equally unexceptionable; because, in employing them, he in no case rests his reasoning upon the sign, but only upon the thing signified. To the materialist, however, it may not be improper to hint, that the several hypotheses already alluded to are completely exclusive of each other; and to submit to his consideration, whether the indiscriminate use, among all our most precise writers, of *these obviously inconsistent metaphors*, does not justify us in concluding, that none of them has any connexion with the true theory of the phenomena which he conceives them to explain; and that they deserve the attention of the metaphysician, merely as familiar illustrations of the mighty influence exerted over our most abstracted thoughts, by *language* and by early associations."[1]

"Strongly impressed with the errors to which we are liable,

[1] *Philosophical Essays*, pp. 227-229.

in the Philosophy of the Human Mind, by the imperfections of our present phraseology, a philosophical grammarian of the first eminence long ago recommended the total proscription of figurative terms from all abstract discussions.[1] To this proposal D'Alembert objects, that it would require the creation of a new language, unintelligible to all the world; for which reason he advises philosophers to adhere to the common modes of speaking, guarding themselves as much as possible against the false judgments which they may have a tendency to occasion.[2] To me it appears, that the execution of the design would be found, by any person who should attempt it, to be wholly impracticable, at least in the present state of metaphysical science. If the new nomenclature were coined out of merely arbitrary sounds, it would be altogether ludicrous; if analogous, in its formation, to that lately introduced into chemistry, it would, in all probability, systematize a set of hypotheses, as unfounded as those which we are anxious to discard."

"Neither of these writers has hit on the only effectual remedy against this inconvenience; to *vary*, from time to time, the metaphors we employ, so as to prevent any one of them from acquiring an undue ascendant over the others, either in our own minds, or in those of our readers. It is by the exclusive use of some favourite figure, that careless thinkers are gradually led to mistake a simile or distant analogy for a legitimate theory."[3]

To this general rule I have endeavoured to adhere through the whole of these *Elements;* and, accordingly, I have expressed myself nearly to the above purpose when treating of Memory.[4] At the same time, when I published my first

[1] *Du Marsais.* Article *Abstraction* in the *Encyclopédie.*

[2] *Mélanges,* tom. v. p. 30. [*Eclair.* § 2.]

[3] *Philosophical Essays,* p. 232, *et seq.* 3d edition. [*Infra, Works,* vol. v.]

[4] "Such, indeed, is the poverty of language, that we cannot speak on the subject without employing expressions which suggest one theory or another; but it is of importance for us always to recollect, that these expressions are entirely figurative, and afford no explanation of the phenomena to which they refer. It is partly with a view to remind my readers of this consideration,

volume, I acknowledge that I was not fully aware of its importance, and that I then indulged the idea of attempting to introduce various innovations in the common phraseology of metaphysics. A hint of this kind is given at the end of Section IV. of the fourth chapter.[1] On more mature consideration, however, I abandoned this project, and adopted less presumptuous, and, I hope, sounder views. These the reader will easily understand, if he peruses the preliminary observations prefixed to my *second* volume. What contributed to open my eyes on this subject was a passage in D'Alembert's *Mélanges*, which I beg leave to transcribe, in order to add the weight of his authority to some logical precepts which I conceive to be of essential use.

"En général il est beaucoup plus simple, et par conséquent plus utile, de se servir dans les sciences des termes reçus en fixant bien les idées qu'on doit y attacher, que d'y substituer des termes nouveaux, sur tout dans les sciences qui n'ont point, ou qui n'ont guère, d'autre langue que la langue commune, ou dont les termes sont assez généralement connus, comme la Métaphysique, la Morale, la Logique, et le Grammaire; il en coute moins au commun des hommes de réformer leur idées que de changer leur langage. Il faut du moins, si la nécessité oblige à créer de nouveaux termes, n'en hasarder qu'un très-petit nombre à la fois, pour ne pas rebuter par une langue trop nouvelle ceux qu'on se propose d'instruire. On doit en user pour changer la langue des sciences, comme pour notre orthographe, qui quoique très vicieuse et pleine d'inconséquences et de contradictions, ne pourra cependant être réformée que peu-à-peu, et comme par degrés insensibles; les changemens trop considérables et trop nombreux, qu'on voudroit y faire tout-à-coup, ne serviroient qu'à perpétuer le mal au lieu d'y remédier,

that, finding it impossible to lay aside completely metaphorical or analogical words, I have studied to avoid such a uniformity in the employment of them, as might indicate a preference to one theory rather than another; and by doing so, have perhaps sometimes been led to vary the metaphor oftener and more suddenly, than would be proper in a composition which aspired to the praise of elegance."—*Elements of the Philosophy of the Human Mind, supra*, vol. i. p. 355.

[1] *Supra, Elements*, vol. i. p. 197.

Hâtez vous lentement, [*Festina lente*,] doit être, ce me semble, la devise de presque tous les réformateurs."[1]

This passage struck me the more forcibly, as I knew that D'Alembert was much more aware than most French philosophers of his time, how fruitful a source of erroneous judgments, particularly in metaphysical researches, is an incautious use of language as an instrument of thought. He seemed to me, indeed, from various remarks scattered over his works, to have entered completely into the spirit of Locke's observations on this important subject, and to have been led by his own reflections into the very same train of thinking, without borrowing his lights from his great predecessor. On one occasion he expresses himself thus:—"Nous ressemblons, bien plus souvent que nous ne le croyons, à cet aveugle né qui disoit que la couleur *rouge* lui paroissoit devoir tenir quelque chose du son de la *trompette*. Il est facile, ce me semble, de trouver la raison de ce jugement si bisarre et si absurde; l'aveugle avoit entendu dire souvent du son de la trompette (qu'il connoisoit) que c'étoit un son *éclatant;* il avoit entendu dire aussi que la couleur rouge (qu'il ne connoissoit pas) étoit une couleur *éclatante;* ce même mot, employé à exprimer deux choses si différentes, lui avoit fait croire qu'elles avoient ensemble de l'analogie. Voilà l'image de nos jugemens en mille occasions, et un exemple bien sensible de l'influence des langues sur les opinions des hommes."[2]

When D'Alembert quoted this anecdote, he was evidently ignorant that it is of *English* origin, and that it had been employed as an illustration of the same argument in the *Essay on Human Understanding*. "A studious blind man, who had mightily beat his head about visible objects, and made use of the explication of his books and friends, to understand those names of light and colours which often came in his way,

[1] *Mélanges*, tom v. p. 31. [Ed. Amst. 1767. *Eclaircissemens sur Les Elémens de Philosophie*, sect. ii.]

[2] Not having D'Alembert's works at hand, I cannot refer to the place from which I copied the above passage, but as it is transcribed in my own hand, I can rely upon the exactness of the quotation. [This also is from sect. ii. of *Eclaircissemens sur Les Elémens de Philosophie.—Mélanges*, ed. Amst. 1767, tom. v. p. 30.—*Ed.*]

bragged one day that he now understood what scarlet signified. Upon which his friend demanded what scarlet was? The blind man answered, it was like the sound of a trumpet."[1]

I cannot dismiss this subject without taking notice of the infelicity of D'Alembert's theory with respect to the source of the blind man's mistake. A much more simple one must immediately occur to every inhabitant of this country, from the appropriation of *red* to the military uniform, combined with the conspicuous rank which the trumpet has occupied, in all ages, among the musical instruments employed in war.

The peculiarly strong and impressive effect produced on the blind man's ear by the *brazen din* of the trumpet, accompanying and overpowering the other instruments of martial music, would naturally be the signal which announced to him the pomp of some military parade; and, such is the strength of the association between scarlet and the military profession, that among the lower orders *red-coats* and *soldiers* are synonymous terms. Dryden has even admitted this cant phrase into his poetry:—

> "The fearful passenger who travels late,
> Shakes at the moonshine shadow of a rush,
> And sees a *red-coat* rise from every bush."[2]

I have little doubt that D'Alembert himself would have preferred this solution to that which he has proposed, if *scarlet* had been the military uniform in France,[3] or if the colour in question, instead of scarlet, had been white.

[1] Book iii. chap. iv. sect. 11.

[2] "In the first crusade," says Mr. Gibbon, "all the crosses were red; in the third, the French alone preserved that colour, while green crosses were adopted by the Flemings, and white by the English. *Yet in England, red ever appears the favourite, and, as it were, the national colour of our military ensigns and uniforms.*"—*Decline and Fall*, &c. vol. xi. p. 11.

[3] I had always imagined, that the above solution must have immediately presented itself to every Englishman capable of the slightest reflection, till I met with the following passage in an *Essay on Tragedy*, by the late Horace Walpole.

"When blind Professor Sanderson said, he supposed scarlet was like the sound of a trumpet, it proved he had been told that scarlet was the most *vivid* of colours, but showed he had not otherwise an idea of it."—*Thoughts on Tragedy*, by Lord Orford. See his *Works*, vol. ii. p. 309.

This quotation, by the way, may

Whatever opinion may be formed on this very trifling point, D'Alembert is entitled to equal praise for the ingenious application he has made of the story to illustrate the extensive and powerful influence of language upon thought. It seems to have struck Locke's fancy very strongly in this point of view, for he has alluded to it repeatedly in different parts of his *Essay*.

SECTION IV.—MISCELLANEOUS OBSERVATIONS ON LANGUAGE.

The latest inquirers into that branch of literature which relates to language, have directed their attention chiefly to the etymological study of different tongues, considered as a guide to our conclusions concerning the origin and migrations of the various tribes of our species. As this view of the subject has, at first sight, but a remote connexion with the Philosophy of the Human Mind, I shall dismiss it with a few miscellaneous remarks. Some of these will be found, I flatter myself, not altogether foreign to the design of this work.

The first author of eminence who led the way in these etymological speculations was Leibnitz, whose various contributions to this branch of knowledge occupy no inconsiderable space in the general collection of his works. In his earliest publication on the subject, which forms the first article in the first volume of the *Memoirs of the Berlin Academy*, he has very clearly and concisely stated the important purposes to which he conceived such researches to be subservient, as well as the leading principle which he proposed to keep in view in carrying them on. I shall only quote the introductory paragraph; but the whole paper well deserves the attention of those whose taste leads them to similar pursuits.

"Cum remotæ *gentium origines* historiam transcendant,

serve to prove, that the anecdotes of the noble author are not always to be implicitly relied on, even with respect to his own contemporaries. His incorrectness, in the present instance, is the more wonderful, as he was himself, (as I happen to know from good authority,) a pupil of Sanderson's, and lived with him in habits of intimacy, while a student at Cambridge.

linguæ nobis præstant veterum monumentorum vicem. Et vetustissima linguarum vestigia supersunt in nominibus fluviorum atque sylvarum, quæ mutatis accolis plerumque persistunt; proximæ sunt locorum ab hominibus constitutorum appellationes; quanquam enim multæ villæ, multa oppida à conditoribus nominentur, quod in Germania valde est frequens, quæ serius exculta est; alia tamen loca à situ, à proventu, à cæteris qualitatibus appellantur, et vetustiorum difficilis est etymologia. Nomina etiam vetera hominum, quorum nulla Germaniæ gens plura Frisiis retinuit, ducunt nos in sacraria, ut sic dicam, veteris linguæ. Illud enim pro axiomate habeo, *omnia nomina quæ vocamus propria, aliquando appellativa fuisse;* alioqui ratione nulla constarent.[1] Itaque quoties vocabulum fluminis, montis, sylvæ, gentis, pagi, oppidi, villæ, non intelligimus, intelligere debemus, ab antiqua nos lingua discessisse."[2]

In various other parts of his works, Leibnitz has enlarged on the ignorance in which we are left by our historical records, with respect to the earlier migrations of the human race; and has fully established this principle, in which all the soundest philosophers now acquiesce, that if any new lights shall ever be thrown on this part of the history of mankind, it is from these etymological researches, conducted by extensive learning under the guidance of sober judgment and good sense, that they are chiefly to be expected.

In confirmation of this idea, I shall quote a passage from Mr. Horne Tooke, an author whose opinion is justly entitled to considerable deference in all etymological discussions, and whose good sense has preserved him, on most occasions, from giving up his judgment to those fanciful resemblances and analogies, which had so powerful an influence on the theories

[1] "*Alioqui ratione nulla constarent:*" "otherwise they would exist without any reason for their existence."

M. Leibnitz seems here to allude to his famous principle of the *sufficient reason;* and to intimate, that, if the first proper names had not been descriptive or significant, there would have been no *reason* or motive to decide the choice of their inventors in favour of one sound rather than of another.

[2] *Miscellan. Berolin,* 1710, p. 1.—[*Opera,* Dutensii, tom. iv. pars ii. p. 186.—*Ed.*]

of most of his predecessors in this department of philology. The passage which follows, I introduce merely as a proof of the confidence with which, in the opinion of Tooke, we are entitled to reason concerning the migrations of our race in past ages, from the affinities between the languages which have prevailed in different parts of the globe.

"It is a great mistake, into which both the Italian and Latin etymologists have fallen, to suppose that all the Italian must be found in the Latin, and all the Latin in the Greek, for the fact is otherwise. The bulk and foundation of the Latin language is Greek; but great part of the Latin is the language of our northern ancestors, grafted upon the Greek. And to our northern language the etymologist must go for that part of the Latin which the Greek will not furnish; and there, without any twisting or turning, or ridiculous forcing and torturing of words, he will easily and clearly find it. We want, therefore, the testimony of no historians, to conclude that the founders of the Roman state, and of the Latin tongue, came not from Asia, but from the north of Europe, for *the language cannot lie*, and from the language of every nation we may with certainty collect its origin. In the same manner, even though no history of the fact had remained, and though another Virgil and another Dionysius had again, in verse and prose, brought another Æneas from another Troy to settle modern Italy, after the destruction of the Roman government, yet, in spite of such false history, or silence of history, we should be able, from the modern language of the country, (which cannot possibly lie,) to conclude with certainty, that our northern ancestors had again made another successful irruption into Italy, and again grafted their own language upon the Latin, as before upon the Greek, for all the Italian which cannot be easily shown to be Latin, can be easily shown to be our northern language."[1]

[1] *Diversions of Purley*, vol. ii. p. 140, quarto edit. A similar observation is made by Leibnitz in the memoir above quoted. "Ex Celtis, id est Germanis Gallisque, Alpes Pyrenæosque transgressis, Italiam et Hispaniam habitatores accepisse credibile est, longe ante illos qui memorantur Livio Gallorum posteriorum adventus. Aborigines Italiæ intelligo, id est incolas Græcis, Lydis,

In this department of literature important future discoveries may, I think, be confidently anticipated, in proportion as a more extensive communication among the different tribes of mankind shall be opened, and as the affinities between their various languages shall be more accurately investigated. Those which have been already traced among some of the most remote and apparently unconnected tongues, are sufficient to demonstrate how imperfectly we are acquainted with the past migrations of our race; and, if they are not yet sufficient to afford a direct proof of the common descent of the different inhabitants of our globe, unquestionably tend, the farther the subject is prosecuted, to lend additional presumptions in favour of that conclusion.

In order, however, to render the study of the affinity of languages a solid foundation for our conclusions, it is necessary that those who devote themselves to it, (keeping in mind the limited grasp of the human powers,) should guard against the danger of rendering their labours fruitless, by aiming at what is wholly beyond the comprehension of our faculties. A few languages, grammatically and critically possessed, would enable them to add more usefully to the mass of philological knowledge, than the almost miraculous gift of tongues displayed in the labours of Adelung and some of his successors.[1] When I say this, I would not be understood to detract from the great and acknowledged merits of these literary prodigies. What

Phrygibus, Phœnicibus aliisque mari advectis antiquiores. Nam antiquissimæ migrationes omnes terra factæ sunt, serius et ægrè magna multitudo navigavit: quanquam Tacito contrarium excideriit. Græcorum deinde multæ in Italia maritimæ coloniæ conditæ sunt: inde lingua Latina ex Celticâ Græcâque mistis nata. Postea pars Italiæ citerior Galliæ Cisalpinæ, ulterior magnæ Græciæ nomen tulit; in medio Latini et Tusci cum vicinis plurimum utrinque trahebant. Hetruscam antiquam non intelligimus, ac quæ ipsius in lapidibus nonnullis supersunt, ne legimus quidem."—P. 10. [*Opera*, Dutensii, vol. iv. pars ii. p. 193.]

On this subject see also *Dictionnai e Etymologique de la Langue Latine*, with the *Discours Préliminaire*, in the sixth volume of Court de Gebelin's *Monde Primitif*.

[1] I call it an *almost miraculous gift*, because in looking over such tables as that exhibited in the Supplement to the *Encyclopædia Britannica*, (see Article *Languages*,) I can only wonder and admire at faculties to which I am unconscious of possessing in myself anything at all analogous.

they have done, was necessary to prepare the way for the minuter industry of their successors. The great outlines being now marked out, and the limits of the chief departments settled, it will be comparatively easy for inferior artists to complete the details of the survey. Much may be expected, for much has been already done, by those missionaries to foreign parts, who, in the midst of their more important occupations, have not thought it an unworthy employment of their time to make an accurate study of the languages spoken by the nations they wish to convert. In India it is well known what they have accomplished, by translating the Scriptures into different tongues, even into the sacred language of the Bramins; with which I have little doubt some of them now possess a more intimate and familiar acquaintance than had previously been acquired by any other class of scholars who have visited the East.

On the other hand, it is impossible not to feel some scepticism concerning etymological researches, when they turn on languages which are accessible only to a small number of scholars; the deceptions which are commonly practised in support of such theories being facilitated in proportion to the obscurity in which the subject is involved. When I say *deceptions*, I would not, by any means, insinuate, that they are always intentional and culpable. It is a natural and pardonable weakness to overvalue even a smattering of knowledge which is possessed by few; and one of the *adepts* may be readily excused, if he addresses the public on his favourite subject, in a more confident tone than he would have assumed, had the points in question lain more open to general examination. Add to this, that when once the mind is intoxicated with a theory, it eagerly grasps at every shadow of evidence which seems to favour it, and is generally the first dupe to the system it has created.[1] I well remember the impression uni-

[1] In the hope of guarding my younger readers against lending too easy a faith to the seducing theories of etymologists, I shall subjoin the sober opinion of a writer, who, of all our contemporaries, was best entitled, from his own unparalleled acquisitions, to form a competent judgment on this subject;—I need scarcely say that I allude to Sir William Jones:—

versally produced, by the speculations of the learned and respectable General Vallancey, when he first attempted to demonstrate a very striking analogy between the Celtic and certain oriental tongues, particularly between the Celtic and the language spoken by the ancient Phœnicians. A specimen

" Etymology has, no doubt, some use in historical researches; but it is a medium of proof so very fallacious, that, where it elucidates one fact, it obscures a thousand, and more frequently borders on the ridiculous, than leads to any solid conclusion; it rarely carries with it any *internal* power of conviction from a resemblance of sounds or similarity of letters; yet, often where it is wholly unassisted by those advantages, it may be indisputably proved by extrinsic evidence. We know *a posteriori*, that both *fitz* and *hijo*, by the nature of two several dialects, are derived from *filius;* that *uncle* comes from *avus*, and *stranger* from *extra;* that *jour* is deducible, through the Italian, from *dies;* and *rossignol* from *luscinia*, or the singer in groves; that *sciuro*, *ecureuil*, and *squirrel*, are compounded of two Greek words descriptive of the animal; which etymologies, though they could not have been demonstrated *a priori*, might serve to confirm, if any such confirmation were necessary, the proofs of a connexion between the members of one great empire; but when we derive our *hanger* or *short pendant sword* from the Persian, because ignorant travellers thus mis-spell the word *khanjer*, which, in truth, means a different weapon, or *sandal wood* from the Greek, because we suppose that *sandals* were sometimes made of it, we gain no ground in proving the affinity of nations, and only weaken arguments which might otherwise be firmly supported."*

From this quotation it appears how very fallacious are those conclusions concerning the affinity of different languages which rest merely on a similarity, or even an identity of sounds, unsupported by any collateral considerations; and, on the other hand, with what confidence the pedigree of a word may sometimes be traced from a word in another language with which it does not contain one letter in common; due allowances being made for that systematical permutation of one letter for another, which is often observable in cognate tongues. This study, therefore, to be successfully prosecuted, supposes a very critical knowledge of both the languages in question; an accomplishment which does not fall to the lot of many etymologists. One of them of some note, and certainly of considerable ingenuity, seems to have considered his deficiencies in this respect as favourable to his researches. " In the few modern languages," says Mr. Whiter, " which I have endeavoured to speak, French, Italian, German, and Spanish, I have ever laboured in vain to acquire fluency and facility; yet even this circumstance was favourable to my inquiries; *I endeavoured to supply that deficiency by number, which existed in the perfection of each; and when I had learnt all that I could acquire in one language, I proceeded to another.* In advancing to this point I found some speed and promptitude; and thus, by comparing many languages, I learnt the affinity of the whole."—(Introduction to Mr. Whiter's *Etymologicon Magnum*, or *Universal Etymological Dictionary;* with Illustrations drawn from various languages—English, Gothic, Saxon, German, Danish, &c. &c.

* Works of Sir William Jones, vol. i. p. 20.

of that language has been preserved by Plautus in one of his plays, which contains some speeches of Hanno, a Carthaginian, in the language of his country: and, in the opinion of some who have devoted much time to the study of the Celtic tongues, he has succeeded in establishing the identity of this Phœnician fragment with the *Irish*,—reasonable allowances being made for the change which the languages may be supposed to have undergone during the lapse of so many ages; and, also, for the corruptions which the Carthaginian speeches must have suffered from the mistakes of ignorant transcribers.

In confirmation of the conclusion to which Vallancey was led by the foregoing discovery, it was farther observed, that the number of Phœnician letters introduced by Cadmus into Greece was (according to Tacitus and Pliny) sixteen; the number of the Irish alphabet is seventeen.[1] It is remarkable, too, that in the Irish alphabet the vowels are placed last, after all the consonants; and, in this, that it agrees with no other known alphabet but the Lybian and the Phœnician.[2]

It has been objected to this, that if the Irish had received their letters from the Phœnicians, they would, like the Phœnicians, have written from right to left. But the objection is such as to appear, on examination, rather favourable to the hypothesis in question. There is no doubt that the Greeks received their letters from the Phœnicians; and, therefore, we must suppose, that in the time of Cadmus they wrote from right to left as the Phœnicians did; yet, so early as in the time of Herodotus, we know that the Greeks wrote from left to right,[3] for he, speaking of the Egyptians, mentions it as an extraordinary peculiarity, that they should write the contrary way. The Irish also might anciently have written from right to left, and changed as the Greeks did. Some of the Irish in-

—Greek, Latin, French, Italian, Spanish, Gælic, Irish, Welsh, Bretagne, &c.—the Dialects of the Sclavonic; and the Eastern Languages, Hebrew, Arabic, Persian, Sanscrit, Gipsey, Coptic, &c. &c. Cambridge, 1800.) If other polyglots were equally candid, I have no doubt they would make a similar confession.

[1] *Grammar of the Irish Language*, by General Vallancey, 26, 16.

[2] Vallancey's *Collectanea de Rebus Hibernicis*, vol. ii. p. 194.

[3] Euterpe, c. xxxvi.

scriptions at New Grange[1] are written from right to left, and left to right alternately, as are several old Irish manuscripts. This manner was called by the Greeks *boustrophedon*, because it resembled the course of the plough; and we are told by General Vallancey, that it is called by the Irish, *the path of the reapers.*[2]

One other circumstance (according to these theorists) is worthy of attention; that the Irish, like the Egyptians, had a sacred character, as well as the popular or profane. The sacred character is called *Ogham*, and (it is said) to resemble much the characters at *Persepolis.*[3] From a correspondence which took place between General Vallancey and Sir William Jones, it appears that this word *ogham*, or *agam*, denotes *mysterious knowledge* in the Sanscrit language;[4] and, with respect to the word *Sanscrit* itself, it has been confidently stated, on the autho-

[1] New Grange, near Drogheda, county of Meath, where the most ancient inscriptions in Ireland are to be found.—*Collectanea de Rebus Hibernicis*, vol. ii. p. 210.

[2] Ibid. p. 326.

[3] "Les caractères Irlandois appelés *Ogham* ont beaucoup de rapport avec ceux de Persepolis."—Bailly, *Lettres sur L'Atlantide*, p. 458.

[4] With all due deference to so illustrious a name, I must be permitted here to observe, that the countenance given by Sir William Jones to the speculations of General Vallancey, together with the endless *Memoirs on the Sacred Isles of the West*, by his ingenious friend the credulous and indefatigable Major Wilford, contributed much to procure to the dreams of the learned Irishman, the very general attention which they once drew in this island.

The following extracts from Sir William Jones's *Discourses to the Society at Calcutta*, will explain and justify the above remark:—

"It has been observed, that the writing at Persepolis bears a strong resemblance to that which the Irish call *ogham:* the word *agam*, in Sanscrit, means *mysterious knowledge;* but I dare not affirm that the two words had a common origin, and only mean to suggest, that, if the characters in question be really alphabetical, they were probably secret and sacerdotal, or a mere cipher, perhaps, of which the priests only had the key."—*Works* of Sir William Jones, vol. i. p. 86.

"Colonel Vallancey, whose learned inquiries into the ancient literature of Ireland are highly interesting, assures me that *Crishna* in Irish means the sun; and we find Apollo and Sol considered by the Roman poets as the same deity. I am inclined, indeed, to believe, that not only *Crishna* and *Vishnu*, but even *Brahma* and *Siva*, when united, and expressed by the mystical word o'm, were designed by the first idolaters to represent the solar fire," &c. &c. &c.—Ibid. p. 268. "This mystical word," we are told in another part of the same discourse, "never escapes the lips of a pious Hindu, who meditates on it in silence."

rity of Celtic scholars, that it denotes *ancient writing* in the Gaelic tongue.[1]

The magnificent bequest of the late Mr. Henry Flood (the celebrated orator in the Irish Parliament) to Trinity College, Dublin, was intended more particularly to promote the elucidation of these problematical and interesting facts.[2] Sir Laurence Parsons mentions it as a circumstance "which he had often heard Mr. Flood notice with regret, that while in the East ingenious men were collecting and translating, with such laudable industry, the ancient writings of the inhabitants of the region between Indus and the Ganges, no attempt was made to connect their researches with those of our Celtic antiquaries. He thought that many of the truths of ancient history were to be found at these two extremities of the world; that they would reflect light and knowledge upon each other, and lead to a more certain acquaintance with the early history of man."[3]

Nearly twenty years have elapsed since this publication of Sir Laurence Parsons, during which time I do not hear that any progress has been made in those inquiries which the bequest of Mr. Flood was intended to encourage. From this it seems reasonable to conclude, that the discoveries which he so sanguinely anticipated have not answered his expectations; or rather, that the facts which he assumed as his data, have not been verified by a more accurate scrutiny. That such a scrutiny has taken place can scarcely be doubted, when it is considered how many Celtic scholars (both Irish and Scotch) have visited India in the course of this interval.

After the issue of this very promising enterprise, it is not surprising that the scepticism of many should be rather increased than diminished, concerning the speculations of our present race of Polyglots.

In consequence of the profound silence which has been so long maintained on this subject, the noise which it once made would probably, in the course of a few years more, have sunk

[1] *Ancient Metaphysics*, vol. iv. p. 348.

[2] The estate which Mr. Flood bequeathed for this purpose is worth £5000 a year.—Sir Laurence Parsons' *Observations on the Bequest of Mr. Flood*, p. 70.

[3] Ibid. pp. 55, 56.

into total oblivion, had not the patriotic bequest of Mr. Flood perpetuated the memory of General Vallancey's writings. To the rising generation, it may not be altogether useless to have alluded here to the history of this philological misadventure.

SECTION V.—MISCELLANEOUS OBSERVATIONS ON LANGUAGE, CONTINUED.

Among the other speculations which have found favour with our modern philologers, I must not omit to mention an opinion which appears, from a dialogue of Plato, to have been also maintained in some of the philosophical schools of ancient Greece. According to this theory, we are taught that, as nothing exists without a *cause*, or, as Leibnitz expresses it, without a *sufficient reason*, we must conclude, that the savages who first imposed *names* on surrounding objects, were decided in their choice of the various sounds which they employed for this purpose, by some fancied resemblance or analogy between the sound and the thing which it was to denote. In the case of sonorous objects this is easily conceivable; and, in point of fact, many examples of it may be produced from all languages. Thus, in our own, a serpent is said to hiss; a fly to buzz; a lion to roar; an ass to bray; a cock to crow. In these, and other cases of the same kind, the theory in question may be safely admitted.

In the case, however, of objects perceived by the eye alone, and, still more, of things intellectual and moral, the application of the theory becomes much more difficult. But, even in such instances, it has been imagined, that some analogy, however obscure and distant, has been fancied between the thing and its original name. In proof of this, a pretty long list has been produced of articulate sounds which have the same signification in a great variety of languages, although the things which these sounds denote seem to have no relation to any object of hearing. The mechanism of the organs by which these names are pronounced, is supposed to have some analogy

to the qualities by which the objects they denote are more peculiarly distinguished; and this trifling circumstance has been presumed sufficient to decide the choice, where all other things were equal.[1] Thus the President de Brosses conceives, that, in most languages, *st* is significant of stability or rest; *fl* of fluency; *cl* of a gentle descent, &c. A similar fancy was indulged long before by the cool mathematical head of Dr. Wallis, who, in his *Grammar of the English Language*, represents it as one of the distinguishing excellencies of our tongue, that it abounds with words beginning with combinations of letters expressive of the things they signify. "Notandum autem est, in vocibus linguæ nostræ nativis, magnam ut plurimum literarum reique significatæ consensum reperiri.

"Adeoque literarum soni tenuiores, acutiores, crassiores, obtusiores, molliores, fortiores, clariores, obscuriores, magisque striduli, &c. pares non raro in rebus significatis affectus innuunt, et quidem plures nonnunquam in eadem voce licet

[1] In the following passage of Aulus Gellius, an attempt is made to point out a relation between the configuration of the organs and emission of the voice in the pronunciation of the monosyllables *vos* (you) and *nos* (we,) and the respective meanings of these words. His reasonings bear a remarkable resemblance to those of some ingenious French writers.

"It is a question which has been much agitated among philosophers, whether names are natural signs of things, or imposed by chance. On this subject P. Nigidius, in his *Literary Commentaries*, has maintained that words, both proper names and appellatives, have been assigned to objects not by accidental appropriation, but by some instinctive impulse of nature. To prove that words are thus natural rather than arbitrary signs, he adduces various arguments. From these I have selected the following as ingenious and curious. When we say *vos*," he observes, "we make use of a certain motion of the organs of speech corresponding with the signification of the word; that is, we gradually protrude the lips, and impel the breath towards the persons whom we address. But, on the contrary, when we pronounce the word *nos*, there neither occurs any forward impulse of the breath, nor any protrusion of the lips, but we direct the movement both of lips and breath inwards, as it were, to ourselves. The same circumstances may be remarked when we say *ego* and *tu*, or *mihi* and *tibi*. For, in like manner, as when by signs we reject or assent to a request, the motion of the head and of the eyes bears some analogy to the thing signified, so in the words of which we have been speaking, we *may* observe, if I may so express it, the instinctive gesticulation of the mouth and the breath. The same remarks apply to the corresponding words in the Greek language." A. Gellius, *Noctes Atticæ*, lib. x. cap. 4.

monosyllaba.[1] . . . . Et hoc quidem tam frequenter, ut vix ulla, quam scio, lingua hac in re huic nostræ æquiparanda videatur: Adeo ut in una nonnunquam voce monosyllaba (quales sunt nostræ fere omnes, si flectionem demas) illud sig-

[1] Of this Dr. Wallis gives a great variety of instances; some of them undoubtedly very happily chosen, in support of his position, while others can scarcely be pressed into his service without much fanciful, or rather extravagant, over-refinement. A few examples will suffice as a specimen.

" Sic voces ab *str* inchoatæ, fortiores, rei significatæ vires et conatus innuunt; ut *strong*, (ex στρωννύω, στρώννυμι, [?]) *strength, to strow, to strike, a stroke, a stripe, strife, to strive, to straggle, to stretch, streight, to strain, string, strap, stream, strand, to strip, to stray, to struggle, strange, stride, straddle*, &c. Neque obstat, quod in horum aliquot manifeste compareant Latinæ originis vestigia: quippe Angli, ut ad hujusmodi sonos formant ipsi vocabula, ita et aliunde sic formata avidius arripiunt.

" *St* vires item, sed minores, innuit: quantæ scilicet parta tuendo potius quam nova acquirendo sufficiant: (quasi esset ex *sto* desumptum:) ut *to stand, a staff, to stay, to stuff, to stifle, to stick, to stutter, to stammer, to stagger, to stickle, to stick, stock, stem, a sting, to sting, a stump, to stumble, to step, to stamp*, (unde *to stamp*, ferro imprimere;) *a stone, steel, stem, stanch*, (firmus,) *to stare, steep, steeple, a standard*, in quibus omnibus *st* firmum quid et fixum innuit.[1]

" *Thr* violentiorem motum innuunt; ut *to throw, to thrust, to throng, to throb, to threaten*, &c. &c.

" *Wr* obliquitatem quandam seu distortionem innuunt: ut *wry, to wreathe, to wrest, to wrestle, to wring*, &c. &c.

" *Cr* ruptum quid, saltem incurvatum seu luxatum innuit; ut *to crack, to crackle, to crow, to crowd, to cram*, &c. Quæ omnia vel fractionis aliquid vel fragoris crepitusve videntur insinuare.

" Alia, quasi ex cruce desumerent *cr* decussationem innuunt; ut *to cross*, (decussare,) *to cruise, a crutch, a crosier, cross-grained*. Hinc Richardus olim Rex Angliæ dicebatur *crouch-backed, non quod dorso fuerit incurvato, sed quod a tergo gestare gestiebat formam crucis*."—The *Grammatica Anglicana* is to be found in the third volume of the *Opera Mathematica* of Dr. Wallis.

Nor did Leibnitz think this view of etymology altogether unworthy of his attention. " Ex ipsa natura soni, litera canina motum violentum notat, at K finale ejus obstaculum, quo sistitur. Sic in *ruck* (*einen ruck thun*) promotio violenta est sed per gradus ubi quavis vice motus sistitur. Sic etiam adhibetur *recken*, cum subito vi magna nec sine sono intenditur filum vel aliud, ita tamen, ut non rumpatur, sed sistat impetum: ita habemus ex linea curva rectam, eamque instar cordæ tensam.

[1] This combination of letters has struck our most eminent Etymologists, more, perhaps, than any other; not only Wallis, but the President Des Brosses and Court de Gebelin. " Nous ne citerons ici," says the last of these writers, " qu'un seul exemple de cette nature: mais il vaut lui seul une légion: c'est *st*. Ce mot désigne la propriété d'être fixé, arrêté, de rester en place; c'est le mouvement ou le cri de ceux qui désirent qu'on s'arrête, qu'on reste en place: d'où vient cela, si ce n'est parce qu'on prononçant *s*, on produit un espèce de sifflement qui excite l'attention de celui qui va devant; et que l'intonation *t* qui vonant à la suite, est sèche, brève, et fixe, indique naturellement la fixité dans laquelle on désire que soit cette personne."

" Quoi qu'il en soit, aucune langue d'Europe, dans laquelle *st* ne soit la racine d'une multitude de mots, regardés eux-mêmes comme des mots radicaux."—*Monde Primitif*, tom. iii. p. 353.

nanter exprimitur, quod in linguis aliis nisi compositis, aut decompositis, aut longa nonnunquam verborum periphrasi vix aut ne vix explicari potest."

These, and other remarks of the same kind, which had been thrown out (chiefly, perhaps, as a curious and amusing exercise of ingenuity) by the writers quoted below, have been pushed much farther, and reduced into a serious and systematical form by some late authors; among whom the most noted is M. Court de Gebelin, author of a work entitled *Monde Primitif, Analysé et Comparé avec le Monde Moderne, considéré dans l'Histoire Naturelle de la Parole, ou Origine du Langage et de l'Ecriture.* This work certainly does honour to the author's learning, and contains many ingenious and original remarks; and what adds much to its value, is the summary it exhibits of all that is important in the labours of his predecessors. It must, however, be owned, that the perusal of it is tedious; the author having spread his materials over nine quarto volumes, although they might have been compressed into two, or at most into three, with great advantage. The part of it, in particular, which relates to ancient mythology, which it is not improbable that he considered as the most valuable of the whole, might, in my opinion, have been omitted without injury to his reputation.

The most remarkable peculiarity in M. de Gebelin's system, is the attempt he makes to show, that there is, in every single letter, an expression of some idea, feeling, or sentiment: so that he considers every alphabetical letter as a kind of root of the primitive language, and, consequently, of all the languages derived from it. *Vowels* he considers as the painting and language of *sensations*;[1] *consonants*, as the painting and language

Sed ubi ruptio fit, pro litera K sistente, sequitur S, vel Z, motus exeuntis index, et fit *riss, reissen, riz.* Tales detegunt sese primæ origines vocabulorum, quoties penetrari potest ad radicem τῆς ὀνοματοποιίας. Sed plerumque tractu temporum, crebris translationibus veteres et nativæ significationes mutatæ sunt aut obscuratæ. Neque vero *ex instituto* profectæ, et quasi lege conditæ sunt linguæ, sed naturali quodam impetu natæ hominum, sonos ad affectus motusque animi attemperantium."—*Miscellanea Berolinensia*, tom. i. p. 2. [*Opera*, Dutensii, tom. iv. pars ii. p. 187.—*Ed.*]

[1] How is this doctrine, which repre-

of *ideas*. The proofs he produces of this very bold position are some of them highly curious,—but for these I must refer to his work.

Of this theory, the germs are plainly discernible, not only in those speculations of which I have laid specimens before the reader, in my quotations from Wallis and Leibnitz, but, as I hinted in the beginning of this Section, in one of the Dialogues of Plato.[1] I cannot help suspecting that the late Dr. Murray was *partly* influenced by a similar train of thinking, in forming his somewhat ludicrous list of the nine monosyllables quoted below, which he gives as the basis of the European languages.[2]

sents all the vowels as so many *radicals*, to be reconciled with the author's fundamental position, that vowels are of *no account* in the comparison of words? "*Les voyelles ne sont rien dans la comparaison des mots.*"—*Monde Primitif*, tom. iii. p. 47.

[1] *Cratylus*, sive de Recta Nominum Ratione. Πρῶτον μὲν τοίνυν τὸ Ρ ἴμασιγι φαίνεται ὥσπερ ὄργανον εἶναι πάσης τῆς κινήσεως, &c., &c. [§ 91.] (Platonis *Opera*, Serrani, [tom. i.] p. 426.) The whole passage is curious, but much too long to be quoted here. The following very succinct summary by Mr. Gray will convey a general idea of the scope of the doctrine which Plato puts in the mouth of Socrates concerning the "powers of the several Greek letters, and the manner of their formation; viz., the P, expressive of motion, being formed by a tremulous motion of the tongue; the I, of smallness and tenuity; the Φ, Ψ, Σ, Z, of all noises made by the air; the Δ and T of a cessation of motion; the Λ of slipperiness and gliding; the same with a Γ prefixed, of the adherence and tenacity of fluids; the N of any thing internal; the A of largeness; the O of roundness; and the H expressive of length."

It may be worth while to add, that, in the opinion of Mr. Gray, (an excellent judge,) this Dialogue is "the least considerable of all Plato's works, and was probably written when he was very young."—Gray's *Works by Mathias*, vol. ii. p. 376.

[2] "I. To strike or move with swift, equable, penetrating, or sharp effect, was *ag! ag!*

"If the motion was less sudden, but of the same species, *wag*.

"If made with force, and a great effort, *hwag*.

"These are varieties of one word, originally used to mark the motion of fire, water, wind, darts.

"II. To strike with a quick, vigorous, impelling force, *bag* or *bwag*, of which *fag* and *pag* are softer varieties.

"III. To strike with a harsh, violent, strong blow, *dwag*, of which *thwag* and *twag* are varieties.

"IV. To move or strike with a quick, tottering, unequal impulse, *gwag* or *cwag*.

"V. To strike with a pliant slap, *lag* and *hlag*.

"VI. To press by strong force or impulse, so as to condense, bruise, or compel, *mag*.

"VII. To strike with a crushing, destroying power, *nag* and *hnag*.

"VIII. To strike with a strong, rude, sharp, penetrating power, *rag* or *hrag*.

"IX. To move with a weighty strong impulse, *swag*."—*History of the Euro-*

He seems, indeed, himself, to be occasionally conscious of this influence. "It is certain," he observes in one passage, "that a natural connexion exists between the sound and sense, and that we therefore express harsh sensations by harsh articulate sounds." His manner of expressing himself, however, in general, seems rather to imply, that these radical sounds were obtained entirely by induction and analysis: but it is by no means impossible, that he may have been more under the influence of theory than he was aware; and even supposing his own mind to have been free from any speculative bias, we must still have recourse to some such theory as that of Gebelin and De Brosses, to account for the agreement of the framers of language, in so many instances, to fix on the same radical sounds to convey the same ideas.

That these theories are altogether unfounded, I am far from thinking; but I am fully convinced that they have been all carried too far, and that fancy or whim has had a large share in their formation. Nor need I scruple to hazard this remark with respect to any writer, however eminent for learning and genius, when I apply it to him in common with Gebelin and De Brosses, and with the still more illustrious names of Wallis and Leibnitz.[1]

pean Languages, &c., by the late Alexander Murray, D.D., vol. i. pp. 31, 32.

"By the help of these nine monosyllables (says Dr. Murray) all the European languages have have formed." —Ibid. p. 39.

In a subsequent part of his work, we are told that the Sanscrit and the Persic have been formed by the help of the same nine monosyllables. "It has been shown how the original language of Europe rose from nine monosyllables and their varieties; all original Sanscrit and Persic verbs are either these nine words and their varieties, or simple compounds of these, which may be called secondary verbs, or compounds of secondary verbs, with the original consignificative words, which may be called ternary compounds or derivatives."—Ibid. vol. ii. p. 229.

[1] I had not the pleasure of knowing Dr. Murray personally, but I know well the high estimation in which his attainments as a Polyglot were held by two of the most competent judges in this island, the late Dr. Leyden and the late Mr. Hamilton of Hertford College. The opinion of the latter is recorded, along with various other testimonies to the same purpose, in the very curious, interesting, and authentic memoir prefixed to Dr. Murray's *Posthumous Works*, by Sir Henry Moncreiff Wellwood. Whatever, therefore, may be thought of the nine monosyllables above quoted, and of some of Dr. Murray's other theoretical

Of late years, a perfectly new subject of speculation has been opened to philologers in the Sanscrit, or sacred language of the Indian Bramins; which, in the systematical regularity of its structure, as well as in its *unfathomable antiquity*, would appear to form an exception to every other tongue known in the history of the human race. At first, it strongly excited the curiosity of learned and inquisitive men, from the hope held out by some distinguished members of the Asiatic Society, that the knowledge of it would furnish a key to immense stores of wisdom and of fancy locked up in the repositories of the Bramins. But as this hope has not hitherto been realized, a suspicion has of late gained ground, that these artful priests have little or nothing to communicate which is likely either to enlarge the boundaries of science, or to add to the classical treasures of imagination already in our possession. The Sanscrit has, accordingly, become to philosophers an object of curiosity rather on its own intrinsic account, than from any idea of its instrumental utility. In this point of view, some information with respect to it has been, in our own times, communicated to the public, of too interesting a nature to be passed over in silence; and I shall therefore make no apology for allotting to the consideration of it a separate section.

If, in the prosecution of this subject, I should be thought to enlarge upon it at a length disproportinate to its importance, I hope that some allowance will be made for my partiality to an hypothesis which seems to myself to possess some plausibility as well as novelty; while I attempt, at the same time, by varying the object of the reader's attention, to relieve a little the unavoidable uniformity of these abstract disquisitions.

notions, his extensive and accurate acquaintance both with European and Asiatic languages, is incontestable; and when connected with the disadvantages under which he laboured in point of education, is perhaps as extraordinary a fact as any known in the history of letters.

SECTION VI.—MISCELLANEOUS OBSERVATIONS ON LANGUAGE, CONTINUED.—CONJECTURES CONCERNING THE ORIGIN OF THE SANSCRIT.

It is now a considerable time since the similarity between the Sanscrit and the Greek (and also between the Sanscrit and the Latin, which is the most ancient dialect of the Greek) was remarked by Mr. Halhed and Mr. Wilkins, the first Englishmen, it would seem, who attempted to study Sanscrit with grammatical accuracy.[1] They took notice particularly of the striking resemblance in many of those words, which, being necessarily coeval with civilized society, no language could have borrowed from another, unless it was a derivative or dialect of that language. Of this kind are the names of numbers; of the members of the human body; and of family relations, such as those of father, mother, and brother.[2]

To Mr. Halhed we are indebted for two other very important facts, that "every Sanscrit verb has a form equivalent to the middle voice of the Greek, used through all the tenses with a reflective sense;"[3] and that all the Greek verbs in *μι* are "formed exactly upon the same principle with the Sanscrit conjugations, even in the minutest particulars."[4]

In addition to these facts, Mr. Wilkins remarked the coincidence of the Sanscrit with the Greek, in the composition of words with the letter *a*, implying a negation of the quality expressed by the word, and therefore called by the Greek grammarians the *Alpha privativum*. According to Mr. Wilkins, this composition is equally common in both languages.[5]

[1] See the Preface to a *Grammar of the Sanskrita Language*, by Charles Wilkins, LL.D.

[2] *Ancient Metaphysics*, vol. iv. p. 326.

[3] *Grammar of the Bengal Language*, printed at Hoogly, in Bengal, 1778, p. 101.

[4] Ibid. p. 126.

[5] This coincidence between Sanscrit and Greek is not, so far as I know, mentioned by Mr. Wilkins in any of his own publications; but it is confidently stated, upon *his* authority, by Lord Monboddo, in the fourth volume of his *Ancient Metaphysics*, p. 331. His words are these:—"But a more extraordinary composition in the Sanscrit than any I have hitherto mentioned, and which is the same in the Greek, and is so remarkable a peculiarity in both languages,

Another convincing proof of the close affinity between Sanscrit and Greek, is afforded, in my opinion, by the near coincidence between them in their system of prosody. On this point we have the conclusive testimony of Sir William Jones. "The Sanscrit prosody is easy and beautiful. The learned will find in it almost all the measures of the Greeks, and it is remarkable, that the language of the Bramins runs very naturally into Sapphics, Alcaics, and Iambics."[1]

A variety of other instances of the affinity or analogy between these two languages have been taken notice of by other writers, since the time that the idea was first started by Mr. Halhed and Mr. Wilkins; but the most decisive statement I have yet met with on the subject, occurs in a letter addressed to an anonymous correspondent in England, by the Rev. David Brown, Provost of the College of Fort William. The letter is dated Calcutta, 13th September 1806.

After mentioning that a translation by the missionaries of the two first gospels will be ready by the end of this year, Mr. Brown adds,—"Shanscrit answers to Greek as face answers to face in a glass. The translation will be perfect, while it will be almost verbal. A Shanscrit edition of the Gospels will be published with the Greek on the opposite page, as soon as we can procure Greek types. You will find the verb in the corresponding mood and tense, the noun and adjective in the corresponding case and gender. The idiom and government are the same; where the Greek is absolute, so is the Shanscrit, and in many instances the primitives or roots are the same. This will exhibit a curious phenomenon to the learned in Europe."[2]

that I think it is impossible it could exist, except in languages that were originally the same. The composition I mean is of words with the letter *a*, implying a negation of the quality expressed by the word; for which reason it is called by the Greek grammarians the *a privative*, such as the words ἄκρατος, ἀβλαβής, and hundreds of others. Now I am told, not only by Mr. Wilkins, but by others who have applied to the study of the Sanscrit, particularly Mr. Hastings, who is not only a good Greek scholar, but learned in the Sanscrit, that this composition is as common in that language as it is in Greek."

[1] *Works* of Sir William Jones, vol. i. p. 359.

[2] For some farther information on this subject, the curious reader is referred to an article in the 33d volume of the *Edinburgh Review*, p. 431, where some

On a coincidence so astonishing, it would perhaps be more prudent for me to be totally silent; but the reader will, I hope, pardon me if I add a few conjectures to those of my predecessors, concerning a fact which may be regarded as unparalleled in the history of man. These conjectures were suggested to me by a remark thrown out by Mr. Gibbon in his history. "I have long harboured a suspicion (he observes) that some, *perhaps much*, of the Indian science was derived from the Greeks of Bactriana."[1] To this hint, however, I paid but little attention, till I found the same opinion stated with considerable confidence by the very learned Meiners in his *Historia de Vero Deo;* who refers, in support of it, to the proofs alleged by Bayer in his *Historia Regni Græcorum Bactriani.* But, on looking into this work of Bayer, I was much disappointed to find that it embraces only a very narrow corner of Indian science; relating almost entirely to the names of numbers; the division of time into minutes, hours, weeks, months, &c.; the Hindoo calendar; and certain astronomical cycles;—which he labours to show that the Indians derived from the Greeks, and not the Greeks from the Indians. In his argument on this head he displays much curious learning: but he indulges also a good deal in conjectures; and the apology he offers for these appears to me just and philosophical. Indeed it was chiefly to introduce this apology that I was led at present to refer to his work, as I flatter myself it may serve, in some measure, to justify my presumption in indulging imagination a little upon a subject of which I have no pretension to treat from any knowledge of Eastern languages. "Sed de Græcis artibus,

very striking analogies between Greek and Sanscrit, (particularly in the inflections of the verbs,) are quoted from a German publication by Francis Bopp. I regret much that my total ignorance of the language puts it out of my power to have recourse to the original work.

The author of the article now referred to informs us, that the philologers of Germany have lately begun to direct their attention to the languages of India. He, in particular, speaks in terms of high praise of an *Essay on the Language and Philosophy of the Indians*, by the celebrated Mr. Frederick Schlegel. Of this I know nothing, but from the very general account of its object and results given by Madame de Staël, in her work, *De l'Allemagne.*—See tome 3me, p. 119.

[1] Gibbon's *History*, vol. vii. p. 294.

quemadmodum cum oriente communicatæ fuerint, ex conjectura egi. Quo in loco veniam mihi dari cupio, si minutis suspicionibus plus fuerim obsecutus, quam vobis videbitur æquum esse. Odiosum hoc est sæpe, suspicari: attamen, ut mea opinio fert, in tempore et loco necessarium atque utile. Ut enim in obscurissimis quæstionibus primum hoc est, suspicari, ita, si nihil proficiamus amplius, extare et cognosci suspiciones nostras convenit, quibus fortassis alii occasio præbeatur, aut hoc ipsum, aut novum et diversum iter sibi muniendi, quo proxime ad veritatem perveniatur."[1]

Before I proceed to say anything of the Sanscrit, it may be proper to recall to the memory of the reader some facts, for which we have the evidence of history, concerning the ancient intercourse between the Greek colony of Bactriana and the inhabitants of Hindostan.

It is universally known,[2] that after the conquests of Alexander in Asia, it was one great object of his policy to secure the possession of his new empire by incorporating and assimilating, as far as possible, his Asiatic and his European subjects. With this view we find him, soon after the victory at Arbela, assuming, along with many of his officers, the Persian dress, and adopting several of the customs of the conquered people. On the other hand, he encouraged the Persian nobles to learn the Greek language, and to cultivate a taste for Greek literature. We find him, in prosecution of the same design, not only marrying one of the daughters of Darius, but choosing wives for a hundred of his principal officers in the most illustrious Persian families. The example was so eagerly followed by the lower ranks, that, we are told, above ten thousand Macedonians married Persian women, and received marriage gifts from Alexander, as a mark of his approbation.

It is not to be doubted, even although we had no direct evidence of the fact, that he followed the same policy in his

[1] Bayeri *Historia Regni Græcorum Bactriani*. Petropoli, 1738.

[2] Dr. Robertson's *Disquisition concerning Ancient India*, p. 24, *et seq.* edit. of 1791. The reader will find Dr. Robertson's authorities carefully quoted at the foot of each page.

Indian dominions; but he was soon interrupted in the execution of his plans by the mutinous spirit of his soldiers, and almost immediately afterwards by his untimely death.[1]

The measures, however, which he had taken for the security of his conquests had been so well concerted, that India quietly submitted to Pytho, the son of Agenor, and afterwards to Seleucus, who successively obtained dominion over that part of Asia. During the reign of the latter, which terminated forty-two years after Alexander's death, the Macedonian power and possessions in India remained unimpaired.

After the death of Seleucus, the Syrian monarchs seem to have lost their Indian possessions. But the Greeks continued to maintain an intercourse with India, and even to extend their dominions in that quarter. This intercourse was carried on from the kingdom of Bactriana, originally subject to Seleucus, but wrested from his son or grandson about sixty-nine years after the death of Alexander, and erected into an independent state. From the very imperfect gleanings which we are able to collect on this subject from ancient authors, we learn that the commerce of Bactriana with India was great; that they penetrated far into the interior; and that the conquests of its kings in that country were more extensive than those of Alexander himself. From the researches of M. de Guignes into the Chinese historians, it farther appears, that this kingdom of Bactriana subsisted nearly one hundred and thirty years, when it was overwhelmed by a horde of Tartars, about one hundred and twenty-six years before the Christian era.

If these facts be duly weighed, the conjecture of Meiners will not perhaps appear extravagant, that it was in consequence

[1] "Alexander was so intent on rendering this union of his subjects complete, that, after his death, there was found in his tablets or commentaries (among other magnificent schemes which he meditated) a resolution to build several new cities, some in Asia and some in Europe, and to people those in Asia with Europeans, and those in Europe with Asiatics, 'that,' says the historian, 'by intermarriages and exchange of good offices, the inhabitants of these two great continents might be gradually moulded into a similarity of sentiments, and become attached to each other with mutual affection.'"—*Diod. Sicul.* lib. xviii. c. 4.—Robertson's *Disquisition concerning Ancient India*, p. 191.

of this intercourse between Greece and India, arising from Alexander's conquests, that the Bramins were led to invent their sacred language.[1] "For unless," he observes, "they had chosen to adopt at once a foreign tongue," against which obvious and insurmountable objections must have presented themselves, "it was necessary for them to invent a *new* language, by means of which they might express their newly acquired ideas, and, at the same time, conceal from the other Indian castes their philosophical doctrines, when they were at variance with the commonly received opinions." I cannot, however, agree with Meiners, in thinking that this task would be so arduous as to require the labour of many successive generations,[2] for with the

[1] Meiners is not the only writer who has suspected the Sanscrit to be an invention of the Indian priesthood. Colonel Dow, in his *Dissertation concerning the Customs, Manners, Language, Religion, and Philosophy of the Hindoos*, is the first English writer who has expressed this opinion with confidence. "Whether the Shanscrita," he observes, "was in any period of antiquity the vulgar language of Hindostan, or was invented by the Brahmans to be a mysterious repository for their religion and philosophy, is difficult to determine. All other languages, it is true, were casually invented by mankind to express their ideas and wants; but the astonishing formation of the Shanscrita seems to be beyond the power of chance. In regularity of etymology and grammatical order, it far exceeds the Arabic. It, in short, bears evident marks that it has been fixed upon rational principles, by a body of learned men, who studied regularity, harmony, and a wonderful simplicity and energy of expression.

"Though the Shanscrita is amazingly copious, a very small grammar and vocabulary serve to illustrate the principles of the whole. In a treatise of a few pages, the roots and primitives are all comprehended, and so uniform are the rules for derivations and inflections, that the etymon of any word is with facility at once investigated. The pronunciation is the greatest difficulty that attends the acquirement of the language to perfection. This is so quick and forcible, that a person, even before the years of puberty, must labour a long time before he can pronounce it with propriety; but when once the pronunciation is attained to perfection, it strikes the ear with amazing boldness and harmony."—Page 30 of the *Dissertation* prefixed to the *History of Hindostan from the Earliest Accounts of Time to the Death of Akbar*. Translated from the Persian of Ferishta. London, 1767.

[2] I shall transcribe as much from Meiners as will be sufficient to give a general idea of his views on this subject; premising only, that, in transcribing the first paragraph, which is here introduced merely for the sake of connexion, I would not be understood to give any countenance to the author's conjecture about the individual (*Budda* or *Butta*) who he supposes to have been instrumental in incorporating the Greek philosophy with the Indian superstitions.

"Hic Butta sive Budda vel omnium primus, vel inter primos saltem fuisse

Greek language before them as a model, and their own language as their principal raw material, where would be the difficulty of manufacturing a different idiom, borrowing from the Greek the same, or nearly the same system, in the flexions of nouns and conjugations of verbs, and thus disguising, by new terminations and a new syntax, their native dialect? If Psalmanazar was able to create, without any assistance, a language, of which not a single word had a previous existence but in his own fancy, it does not seem a very bold hypothesis, that an order of men, amply supplied with a stock of words applicable to all matters connected with the common business of life, might, without much expense of time and ingenuity, bring to a systematic perfection an artificial language of their own, having for their guide the richest and most regular tongue that was ever spoken on earth; a tongue, too, abounding in whatever abstract and technical words their vernacular speech was incompetent to furnish.

Something not altogether unlike this seems to have taken place in the Roman Catholic monasteries, in which a smattering of Latin, (the language of the Church,) formed a necessary part of the education of a priest; and in which it may, without any breach of charity, be presumed, that the clergy found it occasionally convenient to conceal their conversations with each other from their lay domestics. I have more than once been astonished to observe in the Flemish and French abbeys, before the French Revolution, the ease and fluency with which the Monks, who were in general the most ignorant and illiterate of

videtur, qui Græcorum placita cum antiquis Brachmanum superstitionibus et vivendi ratione copulaverit. . . .

"Huic meæ conjecturæ alteram adjicio, ex hujus nempe aliorumque virorum, qui eâdem fere tempestate ad externa studia sese applicuerunt, institutionibus, ingentes sine dubio discipulorum catervas prodiisse, quorum opera et junctis viribus præclara illa et toties laudata antiqua Brachmanum lingua inventa sit. Nisi enim semper peregrino sermone uti volebant; de nova ipsis lingua cogitandum erat, qua novas res, atque incognitas hactenus notiones exprimere, simulque doctrinas suas cum patriâ religione pugnantes ceteros Indorum ordines celare poterant. *Ejusmodi vero linguæ inventio adeo arduum atque difficile negotium esse mihi videtur, ut illud non nisi multis hominum ætatibus perfici potuisse existimem.*"—Meiners, *Historia Doctrinæ de Vero Deo*, Lemgoviæ, 1780, pp. 134, 135.

men, expressed themselves in a sort of barbarous Latin, on many petty details of ordinary life, that would have imposed silence on Parr or Porson. This sort of dialect was proverbially known among the Scotch and English ecclesiastics, established in Catholic countries, by the significant name of *Kitchen-Latin*, a phrase which they probably borrowed from the Germans.[1] They who have read the *Polemo-Middinia* of Drummond, a medley of Latin and Scotch, where it is pushed to the length of ludicrous extravagance, may form a general idea of the species of Latinity to which I allude.

"*Coal-heughes nigri girnantes more Divelli.*"[2]

But although a very moderate degree of industry might have been sufficient to bring this new language to such a degree of

[1] The following paragraph is extracted from Dr. Jameson's *Dictionary of the Scottish Language*, Art. *Dog-Latin*:—

"Lord Hailes, speaking of Kennedy's *Testament*, says, 'The alternate lines are composed of shreds of the breviary, mixed with what we call *Dog-Latin*, and the French *Latin de Cuisine*.' This in German is denominated *Kuchen-Latein*, which Wachter renders *Kitchen-Latin; qu.* that used by cooks." I should rather be inclined to conjecture, *the Latin used in the Refectory*. In that social scene of monastic indulgence it may not unreasonably be supposed that the table-talk of the monks turned frequently on the specimens before them of their cook's skill in the culinary art; on which occasions they would find it absolutely necessary to supply the poverty of classical Latinity by Latinized terms borrowed from their vernacular tongues. Hence, I think, a satisfactory account of the origin of the phrase *Kitchen-Latin*, which, by an easy and natural transition, would gradually be extended to all the other colloquial barbarisms which took their rise from the peculiarities of modern manners.

To the barbarous or *slip-slop* Latin used by the monks, there is a pointed allusion in Buchanan's Satire, entitled *Franciscanus*. Addressing himself to a young novice, whom he supposes recently admitted into the order, he gives him some counsels with respect to the conduct of his studies.

"Nec te Grammaticas opus est ediscere nugas,
Et tetricis languere scholis, &c. &c.
* * * * *
Nec te vox barbara turbet,
Aut temere erumpens lingua titubante solœcus."
* * * "*Mysteria Sacra*
Turpe est grammaticis submittere colla capistris."—
Buchanani *Opera*, tomus ii. p. 273. Lugduni Batavorum, 1725.

[2] The Latin style of the monkish historians in the fifteenth century was somewhat of the same description.—"Thus William of Worcester tells us, that the Duke of York returned from Ireland, *et arrivavit apud Redbanke, prope Cestriam*," (and arrived at Redbank, near Chester;) and John Rous, the antiquarian of Warwick, says, "That Thomas Grey, Marquis of Dorset, son of Queen Elizabeth, widow of Edward

perfection as would fit it for the essential purposes which its framers had in view, it was probably the work of successive ages to bestow on it all the improvements of which it was susceptible. It is difficult to conceive how far these improvements might be carried in the unexampled case of a language which was never contaminated by the lips of the vulgar, and which was spoken only by men of contemplative and refined habits, peculiarly addicted to those abstract speculations which are so nearly allied to the study of grammar and philology. It must be recollected, too, how much their labours would be facilitated by the systematical regularity of the model after

IV., and Sir Thomas Grey, her brother, were obliged to fly, *quod ipsi conʻravissent mortem Ducis Protectoris Angliæ*," (because they had contrived the death of the Duke Protector of England.)—Henry's *History*, vol. x. p. 118. Dr. Henry mentions these barbarisms as a proof of the decline of learning at this period; but they were probably owing, at least in part, to the habitual use among the ecclesiastics of their *Kitchen-Latin* as a medium of conversation. Ludicrous as they are, they may have escaped the pen of writers perfectly able to read and to interpret all the Roman Classics known in their times.

The use of *Kitchen-Latin* in the monasteries naturally gave birth, among the idle inmates, to Macaronic poetry. Its native country, as may be inferred from the name, was Italy, where *Folengo*, a Mantuan monk of the Benedictine order, (born in 1491,) distinguished himself by some publications in this style; in which, amidst much licentiousness, there are said to be many passages, which discover a genius fitted for nobler undertakings.—See Ginguené *Histoire Littéraire d'Italie*, vol. v. p. 533, *et seq.* The example was soon followed, I believe, in all Catholic countries, particularly in France, (which, among other things of the same kind, produced a Macaronic poem, *De Arte Dansandi*,) in Germany, and the Netherlands.

The author of the *Polemo-Middinia*, who had resided long abroad, and whose English imitations of the Italian sonnets, when compared with those of his contemporaries, are, in elegance and tenderness, inferior only to those of Milton, was so much struck with the peculiar humour displayed in these Macaronic compositions, as to make a trial, after his return home, of the effects resulting from such a medley of Latin with broad Scotch, as Folengo and others had exemplified in combining Latin with other modern tongues. The copy of this performance, which is now before me, is appended to the folio edition of his works, printed at Edinburgh in 1711. I understand there is an earlier edition, with Latin notes, by Bishop Gibson, published at Oxford in 1691. In what year the first edition appeared I cannot at present say, but it must have been in the earlier part of the seventeenth century, as the author died in 1649.

Since Drummond's time, I have not heard of any similar attempt in Great Britain, excepting those by the late Reverend Alexander Geddes, a learned, though not very orthodox, clergyman of the Roman Catholic Church.

which the original artists had wrought in its first composition. The accounts which are given by the most competent judges of the progressive improvement of Sanscrit, seem to be highly favourable to the foregoing hypothesis, more particularly in the date which is fixed for the era of its greatest perfection. "Sanscrit," says Mr. Colebrooke, "is a most polished tongue, which was gradually refined, until it became fixed in the classic writings of many elegant poets, *most of whom are supposed to have flourished in the century preceding the Christian era.*"[1]

During the interval between the invasion of Alexander and the period here mentioned, there was ample time for polishing and refining to the utmost this artificial dialect. Nor is it easy to explain why so many classic poets should have appeared so soon after Alexander's invasion, but by the *impetus* which the minds of the Hindoos had received, and the new lights which they had acquired by their recent intercourse with the Greeks and Persians.[2]

According to the idea which has now been suggested, we may expect to find Sanscrit as widely diffused as the order of Bramins;[3] indeed, if there be any foundation for the foregoing

[1] *On the Sanscrit and Pracrit Languages*, by H. J. Colebrooke, Esq.—*Asiatic Researches*, vol. vii. p. 200.

[2] "The word *Sanskri'a*," we are informed by Mr. Wilkins, in the first page of his *Grammar*, "is a compound participle, literally signifying altogether, or completely made, done, or formed, (Latin, *confectus*,) from the inseparable preposition *sam*, altogether, or together, (Latin, *col*, *com*, *con*, *cor*,) and *krita*, done, with the interposition of a silent *s*, which letter being a *dental*, requires that the labial nasal which precedes it should be pronounced as a dental also, namely, as *n*. The word, in its common acceptation, denotes a thing to have been *composed, or formed by art, adorned, embellished, purified, highly cultivated or polished, and regularly inflected as a language*."

I do not lay much stress on this etymology, which may perhaps be accounted for in some other way, of which I am not aware; but I may be permitted to remark, that, so far as it is allowed any weight, it is rather favourable than otherwise to the foregoing hypothesis.

[3] "Je crois que la base du Malay est monosyllabique; en effet on y trouve un grand nombre de mots d'origine Chinoise; *les mots Sanscrits ont été introduits, à mesure que les Malays ont adopté le Brahmanisme.*"—Langlès, as quoted by Mr. Q. Crawford, in his *Researches concerning the Laws, Theology, &c. of Ancient and Modern India*. Lond. 1817, vol. ii. p. 206. On the other hand, it is a fact no less remarkable, that a knowledge of the Sanscrit *is confined exclusively* to those regions

conjectures, it was probably in the possession of every Bramin in the course of one or two generations after Alexander's invasion. From the natural curiosity of this order of men, joined to the *esprit de corps*, Greek may be presumed to have formed a part of their professional education; more especially, as, with a slight knowledge of its syntax, nothing more was necessary for their instruction in Sanscrit, but a few examples of the mode of combining Greek with their vernacular tongues. We have reason to believe that a knowledge of Greek was spread over India not long after the period in question. Of this various proofs might be given;[1] but I shall only mention here a single fact recorded by Strabo, that, in the reign of Augustus, ambassadors from an Indian Prince arrived at Rome, charged with various presents to the Emperor, *together with a letter in the Greek language, written by the Prince himself.*[2] Strabo mentions this on the authority of Nicolaus Damascenus, who himself conversed with the ambassadors at Antioch on their way to Rome, and saw the presents of which they were the bearers.[3]

where the order of Bramins is to be found. This is admitted in the *Edinburgh Review* by a very learned orientalist. "The Sanscrit, the literary language of India, the guardian of all its ancient knowledge, *has never left the sacred spot beyond the precincts of which Bramins are forbidden to travel.*"—Vol. v. p. 289. How are these two facts to be accounted for, but on the supposition that the Bramins were themselves the authors of their own sacred language?

[1] See Bayeri, *Historia Regni Græcorum Bactriani*, xliv. xlv.

[2] (. . . Ἐπιστολὴν Ἑλληνικὴν ἐν διφθέρᾳ γεγραμμένην, δηλοῦσαν ὅτι Πῶρος εἶη γράψας· ἑξακοσίων δὲ βασιλέων ἄρχων. —Strabo, lib. xv. p. 1048, ed. Almel.) Among these presents Strabo mentions particularly some large vipers and serpents, and a young man without arms. The same fact is recorded by Dio Cassius, who compares the young man to a Hermes, [That is, to an *image* of *Mercury*, which was figured without arms, &c.—*Ed.*]; (. . . οἷους τοὺς Ἑρμᾶς ἑρῶμεν.—Dio Cassius, lib. liv. p. 527, ed. 1607,) and adds, "That by means of his feet he bent a bow, discharged arrows, and sounded a trumpet." The latter historian seems to doubt the possibility of this; but in the present times, when numerous well attested instances have occurred of persons who, in the same mutilated condition, have supplied the want of hands by means of the foot, this very circumstance becomes the strongest of all presumptions in favour of the other less extraordinary details which form part of the same narrative. The embassy of the Indians to Augustus is noticed also by Suetonius and Florus.—Suetonii, *Cæsar Octavianus Augustus* xxi.; Flori *Epitome*, lib. iv. cap. xii.

[3] "The language of Greece was early cultivated in the East. Before the era

To these considerations we may add, that, as the learned language in use among the priests must necessarily have mingled itself more or less with their vernacular tongues, we may everywhere expect to find, more especially in abstract and scientific words, Sanscrit incorporated with the different dialects spoken in different parts of India. It is not, therefore, wonderful, that Mr. Wilkins should assert, that "he who knows Sanscrit has already acquired a knowledge of one-half of almost every vernacular language in India, while he who remains ignorant of it, can never possess a perfect and critical understanding of any, though he may obtain a certain proficiency in the practical use of them. The several dialects confounded under the common terms Hindi, Hindavi, Hindostani, and Basha, deprived of Sanscrit, would not only lose all their beauty and energy, but with respect to the power of expressing abstract ideas or terms of science, would be absolutely reduced to a state of barbarism."[1]

Suppose a Roman scholar of the Augustan age (Cicero, for example, or Varro) to be miraculously recalled to life in modern Scotland, and to retain all the knowledge and all the habits of thinking which he had acquired during his former existence:—Suppose farther, that, after residing some years in the country, he had acquired such a smattering of broad Scotch as is commonly possessed of Eastern languages by European adventurers in that part of the world: should the *Polemo-Middinia* be put into the hands of the Roman scholar as an

of Mahommed it was considered as a branch of polite, and even of mercantile education; Greek slaves were common in Arabia. The receipts and disbursements of the treasury of the Khalifs were written in that tongue for several generations after the prophet's death."—Richardson's *Dissertation on the Languages, &c. of the Eastern Nations.*

[1] *Grammar of the Sanskrita Language*, by Charles Wilkins, LL.D. and F.R.S. Preface, pp. 10, 11.

The learned author of *Ancient Metaphysics*, after acknowledging his great obligations to Mr. Wilkins for his information concerning the Sanscrit, adds, "I have collected, from some *other travellers* in India, Shanscrit words that are clearly Greek, such as *gonia*, the Shanscrit word for an *angle*, *kentra* for a *centre*; and they use the word *hora* in the same sense that it is used in Latin." —*Ancient Metaphysics*, vol. iv. p. 330. The information is curious, and would have been important, if it had rested upon the authority of Mr Wilkins

ancient composition, by some Scotsman who was disposed to amuse himself with his credulity, (following the example of those Bramins who practised on the easy faith of Major Wilford,)[1] what a fund of speculation would be suggested to him by this strange medley of two languages so different! Was the Scotch grafted on the Latin, or the Latin on the Scotch? The preponderance of Scotch roots in the staple of the dialect, might incline him to the one opinion, while the universal prevalence of the Roman inflections, and of the Roman forms of syntax, would probably decide him in favour of the other; more especially when he was told how very long his countrymen were in actual possession of this island. The harmony of the verse, so superior to that of Ennius, and even to that of a great part of Lucretius, (and, in truth, resembling occasionally the numbers of Virgil,) would, however, add much to the difficulty of the problem. Perhaps it might occur to him, as a still more reasonable hypothesis, that this jargon was the relic of some language now extinct, which was formerly spoken both at Rome and at Edinburgh; nor would there be wanting arguments to justify the conjecture, that it was once the universal dialect of Europe, and that it forms the basis of all the different European tongues. The intermixture of Gothic words in the Law Latin of most of the European nations, and, still more, the varieties in the *Kitchen-Latin* of the monasteries, ever changing with the vernacular speech of different countries, would probably come powerfully in aid of some of these theories.

On this singular performance (the *Polemo-Middinia*) it may not be altogether useless to remark, that while it is readily understood by every Scotsman who has learnt the Rudiments of Latin, it is quite as unintelligible to those who are ignorant of that language, as a passage in Virgil or Horace. In proof of this, I shall transcribe a few lines from the beginning and end of the poem.

"Nymphæ quæ colitis highissima monta Fifæa,
Sive vos Pittenwema tenent, seu Crelia Crofta,

[1] See Appendix I. to this Section.

Sive Anstræa domus ubi nat Haddocus in undis.
* * * * *
Quid multa?—Sic fraya fuit, sic guisa peracta est,
Una nec interea spillata est droppa cruoris."

Why may not some analogous jargon, formed by a skilful medley of Greek with the vernacular tongues of India, have given birth, in the first instance, to the Sanscrit? It would evidently (even in its rudest state) have answered all the purposes which the priesthood could have in view in contriving a *learned* and *sacred* language; while its subsequent refinements, when adopted in the compositions of poets and philosophers, and when it was become an object of study to grammarians and philologers, may have gradually brought it, in the course of ages, to that state of perfection which it is said to possess. The progress would not be more wonderful than that of the French tongue from the phraseology of the treaty between *Charles le Chauve* and *Louis le Germanique*, to that of Voltaire and Buffon;—than the progress of English from King Alfred's paraphrase of Boethius, to the *Spectators* of Mr. Addison;—or that of Latin from the style of the *Twelve Tables* to the compositions of Cicero and of Virgil.[1]

[1] In offering this conjecture, I would not be understood to limit my supposition to a combination of two languages precisely similar to that adopted by Drummond. Others may be imagined, which would be equally effectual for answering the ends which the priesthood had in view; but I can think of none that corresponds so well with what we are told of the regular structure of the Sanscrit, and of its systematical resemblance, in various particulars, to Greek. A very curious account is given by Sir William Jones of the manner in which the Arabic tongue is combined with the Persian; but such a mode of combination is evidently inferior in every respect, for the purposes to which I have supposed the Sanscrit to be subservient, to that exemplified in the *Kitchen-Latin* of the Catholic monasteries.

"The Arabic tongue is blended with the Persian in so singular a manner, that one period often contains both languages, wholly distinct from each other in expression and idiom, but perfectly united in sense and construction. This must appear strange to an European reader; but he may form some idea of this uncommon mixture, when he is told that the two Asiatic languages are not always mixed, like the words of Roman and of Saxon origin, in the following sentence of Cicero, as translated by Dr. Middleton:—'The true law is right reason, conformable to the nature of things, which calls us to duty by commanding, deters us from sin by forbidding;' but, as we may suppose, the

May I be allowed to conjecture farther, that the Sanscrit was not formed in consequence of any deep and systematical design, but began in a sort of slang, or *Gypsey jargon*, (a sort of *kitchen*-Greek,) in which the priests conversed with one another on topics not fit for profane ears? The convenience they experienced in the use of this, would naturally suggest the employment of it in their written communications, and would gradually lead to its cultivation on grammatical principles.

Nor let the initiated few into the mysteries of this so much vaunted language indignantly reject the foregoing hypothesis, from an idea that it tends to throw an air of ridicule over its origin. My own impression is completely the reverse. For is it not a nobler pedigree to be traced to an *oral cipher* (if I may use the expression) invented by the Gymnosophists of India, than to claim a descent from the gabble of some savage horde; or, as is the case with some of the most polished languages of modern Europe, to the intercourse produced by conquest between Roman soldiers and Gothic barbarians! Is not the mode in which I have supposed Sanscrit to be formed, (considering the materials which entered into its composition,) incomparably more likely to have given rise to a regular and refined language, than the combination of accidents which has given birth to every other tongue spoken upon earth!

It is by no means improbable that this conjecture, as well as the various others which my predecessors have offered with respect to the Sanscrit, may be no less wide of the truth, than the speculations which I have ascribed to the Roman scholar concerning the *Polemo-Middinia*. But of these conjectures there are some which we may, I think, confidently reject, from the absolute impossibility of the suppositions they involve; and in this way we may, perhaps, in time, gain a few steps towards the truth, by following what mathematicians call *the method of exclusions*.

Latin and English to be connected in the following period:—'The true *lex* is *recta ratio*, conformable *naturæ*, which by commanding *recta ad officium* by forbidding *a fraude deterreat*.'"—*Works* of Sir William Jones, vol ii. pp. 131, 132.

Of the conjectures here alluded to, that which seems most generally sanctioned among Oriental scholars, seems to me the most manifestly untenable. According to this, we are led to suppose that the Sanscrit was, at some former period, spoken over a great part of the East, and that it still forms the basis of all the various dialects which exist there at this day.

"The grand source of Indian Literature," says Mr. Halhed, "the parent of almost every dialect from the Persian Gulf to the China Seas, is the Shanscrit, a language of the most venerable and unfathomable antiquity, which, although at present shut up in the libraries of the Brahmins, and appropriated solely to the records of their religion, appears to have been current over most part of the Oriental world; and traces of its original extent may still be discovered in almost every district of Asia."[1]

Mr. Colebrooke is equally decisive, and still more precise in his statement. "The Sanscrit," he tells us, "evidently draws its origin from a primæval tongue, which was gradually refined in various climates, and *became* Sanscrit in India, Pahlavi in Persia, and Greek on the shores of the Mediterranean. . . . It is now *become* almost a dead language; but there seems no good reason for doubting that it was once universally spoken in India."[2]

It were to be wished that the very ingenious writer had explained *in what manner* he conceived this primæval tongue to have *become* Sanscrit in one country, Pahlavi in a second, and Greek in a third. Certainly, if it bore any resemblance to the progress by which the Latin language *became* Italian in Italy, Spanish in Spain, and French in France, the effect in the Eastern world exhibits a most wonderful contrast to what has taken place in modern Europe; for while the different *Romanic* tongues all display the most unequivocal marks of their common origin, in the numberless words which may be traced obviously to Latin roots, the *syntax* of all of them (including under this

[1] Preface to Halhed's *Grammar of the Bengal Language.*

[2] *On the Sanscrit and Praerit Languages*, by Mr. Colebrooke.—*Asiatic Researches*, vol. vii. p. 201.

title the various inflections of nouns and verbs) has undergone a total alteration. How essentially different from that affinity and analogy described by Mr. Brown between the Sanscrit and the Greek;[1] or exhibited in the resemblance of the inflections of the verbs in these two languages, in the passage already referred to from Bopp![2] From all the accounts that have fallen in my way, I am led to suspect, that the number of Sanscrit words which can be traced to a Greek root, bears no proportion to that of the words which, in the Romanic tongues, are evidently of Latin origin. Upon the hypothesis which I have proposed, all this is not only explicable, but must necessarily have happened.

It was upon these grounds that I remarked, in a former publication, that "the affinities and filiations of different tongues, as evinced in their corresponding roots and other coincidences, are incomparably more easy in the explanation, than the systematical analogy which is said to exist between the Sanscrit and the Greek in the conjugations and flexions of their verbs, and in many other particulars of their mechanism."[3]

If such a scholar as Dr. Bentley or Dr. Parr should ever make a serious object of studying Sanscrit, he would be able, I should think, without much difficulty, to ascertain, *from internal evidence*, which of the two languages was the primitive, and which the derivative dialect. He would also be enabled to decide, whether the mechanism of the Sanscrit affords any satisfactory evidence of its being manufactured by such a deliberate and systematical process as I have conjectured. It seems to be in this way alone that these points can be settled beyond controversy.

To all this we may add, that it appears difficult, if not impossible, to conceive how a tongue which was once spoken over regions of such vast extent, should have *ceased* to be a living language. It is by means of the most overwhelming and un-

[1] See page 79 of this volume.

[2] "See *Edinburgh Review*, vol. xxxiii. p. 431. Gr. Mid. Voice, σιζομαι, σιζεσαι, σιζεται, σιζομεθα, σιζεσθε, σιζονται. Sanscrit Mid. Voice, Sebe, sebase, sebate, sebamahe, sebadhva, sebante. The root *Seb* has the same signification in Greek and in Sanscrit."

[3] *Dissertation prefixed to the Supplement to the Encyclopædia Britannica*, [*supra*, *Works*, vol. i. p. 426.]

sparing foreign conquests, that languages have been generally changed or destroyed; and that no causes of this sort have operated in the countries where Sanscrit is alleged to have once prevailed, is demonstrated by the religious and political institutions, (more especially by the division of people into castes,) which remain unaltered in the very same countries, from the most remote periods of authentic history.[1] It seems at least

[1] "The conquest of Hindustan, effected by the Mahomedan nations," says Mr. Mill, "was to no extraordinary degree sanguinary or destructive. It substituted sovereigns of one race to sovereigns of another, and mixed with the old inhabitants a small proportion of new; but it altered not the texture of society; *it altered not the language of the country;* the original inhabitants remained the occupants of the soil; they continued to be governed by their own laws and institutions; nay, the whole detail of administration, with the exception of the army, and a few of the more prominent situations, remained invariably in the hands of the native magistrates and officers. The few occasions of persecution to which, under the reigns of one or two bigoted sovereigns, they were subjected on the score of religion, were too short and too partial to produce any considerable effects."—Mill's *History of British India*, vol. i. pp. 437, 438.

According to Major Rennel, (a very high authority, unquestionably, on all matters connected with Indian Geography and Indian History,) "the Sanscrit was the language of ancient Hindostan, but *ceased to be the vernacular tongue soon after the Mahomedan conquest in the eleventh century.*"—Rennel's *Memoir of a Map of Hindostan*, p. 20, Introduction. I should like to know upon what evidence this assertion rests. Mr. Halhed tells us, that "the Hindostanee or Indian language appears to have been spoken *for many ages* through all proper Hindostan."—Preface to his *Grammar of the Bengal Language*, p. 9. Sir William Jones, on the other hand, while he expresses no doubt of Sanscrit's having been once a living language, (without being able, however, to say *when* or *where*,) appears to me to have thought that IT WAS NEVER, AT ANY PERIOD, THE VULGAR OR VERNACULAR SPEECH OF INDIA. But that I may not be accused of imputing to him opinions which he has not explicitly avowed, I shall quote his words:—

"It is much to be lamented, that neither the Greeks who attended Alexander into India, nor those who were long connected with it under the Bactrian Princes, have left us any means of knowing, with accuracy, what vernacular languages they found on their arrival in this empire. The Mahommedans, we know, heard the people of proper Hindostan, or India on a limited scale, speaking a Bhásha, or living tongue of a very singular construction, the purest dialect of which was current in the districts round *Agrà*, and chiefly on the poetical ground of Mat'hurà; and this is commonly called the idiom of Vraja. Five words in six, perhaps, of this language, were derived from the Sanscrit, in which books of religion and science were composed, and which appears to have been formed by an exquisite grammatical *arrangement*, as the name itself implies, from some unpolished idiom; but the basis of the Hindustáni, particularly the inflexions and regimens of verbs, differed as widely

equally inconceivable how a language, so very perfect, should have grown up, contrary to the analogy of every one else known, from popular and casual modes of speech.

The same objection seems to me to apply with still greater force to an hypothesis proposed in the *Edinburgh Review*, by a gentleman whose authority is deservedly high in all matters connected with Indian Literature. In the opinion of this writer, "*it is no improbable hypothesis*, that the Bramins entered India as conquerors, bringing with them their language, religion, and civil institutions. The Purana,"[1] continues the same writer, "seem even to point out the conqueror in the person of Parusaramo, who, at the head of an army of Bramins, extirpated the military tribes, and overthrew all the existing monarchies. But the period of this event is before the æra of historical record."[2]

"Whatever be its antiquity," says Sir William Jones, "it is of a wonderful structure, more perfect than the Greek, more copious than the Latin, and more exquisitely refined than either,[3] yet bearing to both of them a stronger affinity, both

from both those tongues, as Arabic differs from Persian, or German from Greek. Now, the general effect of conquest is to leave the current language of the conquered people unchanged, or very little altered in its ground-work, but to blend with it a considerable number of exotic names, both for things and for actions; as it has happened in every country that I can recollect, where the conquerors have not preserved their own tongue unmixed with that of the natives, like the Turks in Greece, and the Saxons in Britain; and this analogy might induce us to believe, that the pure Hindi, whether of Tartarean or Chaldean origin, was primeval in Upper *India*, into which the Sanscrit was introduced by conquerors from other kingdoms in some very remote age; for we cannot doubt, that the language of the Védas was used in the great extent of country which has before been delineated, as long as the religion of Brahma has prevailed in it."—*Asiatic Researches*, vol. i. pp. 421, 422.

[1] According to Mr. Bentley, the Purana, in point of antiquity, are not older than 700 years; and Mr. Pinkerton thinks he has been successful in demonstrating his assertion.—See his *Geography*, vol. i. p. 718.

[2] *Edinburgh Review*, vol. xiii. p. 369.

[3] After all, is it not possible that the excellencies of Sanscrit may be somewhat overrated by Sir William Jones, from the same bias which has led him to overrate so immensely the merits of those ancient compositions, of which he has enabled the public to judge by the translations with which he has favoured us from that language? Mr. Mill has justly observed, that "languages, on which equal eulogies are bestowed to any which can be lavished on Sanscrit, are the languages confessedly of igno-

in the roots of verbs, and in the forms of grammar, than could possibly have been produced by accident; so strong, indeed, that no philosopher could examine them all three, without believing them to have sprung from some common source which perhaps no longer exists."[1] The only possible supposition, I apprehend, on which all this can be explained, is, that Sanscrit was a language formed by the Bramins, and always confined to their order; and that the Greek tongue not only served as a model for its syntax and system of inflections, but supplied the materials of its vocabulary on abstract and scientific subjects. Difficulties, I am aware, may be started in opposition to this conjecture, and, in particular, it may be objected, that there are various other tongues (the Pehlavi, for instance, or ancient Persian) between which, and the Sanscrit, a close affinity has been remarked.[2] But it deserves consideration whether these objections apply exclusively to the hypothesis I have proposed, and whether they are not equally unaccountable upon the other theories which are in general currency. All of these, too, (it must be remembered,) are encumbered with this additional difficulty, that they are forced

rant and uncivilized men. Molina informs us, that, of the language of the Chilians, the grammar is as perfect as that of the Greek or Latin; that of no language does the formation and structure display greater ingenuity and felicity. The language of the Malays is described by Mr. Marsden, as remarkably sweet and well adapted to poetry. Clavigero knows not where to set a limit to his admiration of the Mexican tongue, it is so copious, polished, and expressive, that it has been esteemed by many superior to the Latin and even to the Greek."—(Mill's *India*, vol. i. p. 392.) I myself recollect, at the time when it was as fashionable to extol with enthusiasm the *Poems* of Ossian, as it is now for the same class of critics to deride them, to have heard many of our Celtic scholars talk of the Gaelic in a like extravagant strain. Macpherson's translation they allowed to be as good as an English version could be; but they insisted (and who could contradict them?) that there was a richness and force in the original to which no known language but the Greek could do justice.

[1] *Works of Sir William Jones*, vol. i. p. 26.

[2] I have now lying before me a book entitled, "*Tableaux Synoptiques des Mots similaires qui se trouvent dans les langues Persane, Samskrite, Greque, Latine, Maesogothique, Islandoise, Suéo-Gothique, Suedoise, Danoise, Anglo-Saxone, Celto-Bretone ou Armorique, Angloise, Alémanique ou Francique, Haut-Allemande, et Bas-Allemande*," par H. A. Le Pileur, &c. &c. &c.—Paris and Amsterdam. (No date; but evidently published under the Imperial Government.)

to have recourse to supposed events which *may* have happened prior to the date of our historical records. In favour of our hypothesis, it may, on the other hand, be observed, that it has the advantage of assuming no imaginary event, while the difficulties with which it is attended admit of an easy and probable solution. Whatever other foreign idioms were at different times introduced into India, may have supplied words which have been incorporated with Sanscrit as well as with the vulgar languages, or rather which have been naturally incorporated with the former through the medium of the latter. It deserves also to be considered, whether those vulgar tongues in India, of which Sanscrit is supposed to be the basis, may not have furnished, at different times, to that sacred language, those words which are commonly referred to it as their original source.

The most formidable objection, however, is suggested by this consideration, that the Sanscrit is represented by some as bearing much more resemblance to the Latin than to the Greek. Mr. Halhed's words are these:—"Let me here cursorily observe, that as the Latin is an earlier dialect than the Greek, as we now have it, so it bears much more resemblance to the Sanscrit, both in words, inflections, and terminations."[1]

In another passage he tells us, that, "in the Sanscrit language, as in the Greek, there are forms of infinitives and of participles comprehensive of time; there are also other branches of the verb that *seem* to resemble the gerunds and supines of the Latin."[2]

Sir William Jones, also, in the preface to his translation of Sacontala, bears a strong testimony to the close affinity between the Sanscrit and the Latin:—"I began with translating it verbally into Latin, which bears so great resemblance to the Sanscrit, that it is more convenient than any other language for a scrupulous interlineary version. I then turned it into English."[3]

[1] *Grammar of the Bengal Language*, p. 137.

[2] Ibid. p. 138.

[3] I must be allowed here to remark, that these statements of the resemblance of the Sanscrit to the Latin, strong as they are, do not amount to any thing so full and precise as that of Mr. Brown,

To this objection, it may be replied, in the first place, that although I have supposed, with Meiners, the first rude draught of the Sanscrit to have been formed soon after Alexander's invasion had introduced the learned in India to an acquaintance with the Greek language and philosophy, this supposition was not meant to exclude other languages from having contributed their share to its subsequent enrichment. The long commercial intercourse of the Romans with India, both by sea and land, accounts sufficiently for any affinity which may subsist between Sanscrit and Latin. When we consider that the former was (according to the hypothesis assumed in this argument) an artificial language, emanating solely from the priesthood, it is impossible to say what changes might not be introduced into it by the caravans of Roman merchants, who, from time to time, visited India, or even by the solitary adventurers who might occasionally find their way into that country; and from whom, it may reasonably be supposed, that the more inquisitive individuals of the order would be eager to acquire some knowledge of a tongue spoken by the conquerors of the world. It strikes me as a very curious and important circumstance, that the names of numbers in Sanscrit are *in part* nearly the same as in Greek, *in part* nearly the same as in Latin. The same thing may be remarked with respect to the names of the different members of the human body.[1] It

who must have derived his information from the translators of the Gospels, with respect to the similarity between the Sanscrit and the Greek. Some farther information on this subject, from competent scholars, seems to me to be still desirable.

[1] This circumstance, with respect to the Indian numbers, is noticed by Bayer, who adds, that a learned correspondent of his was of opinion, that the Brahmins had derived the names of numbers not from the Greeks, but from the Romans. "Reverendus Benjamin Schultzius, qui Madrastæ in littore Coromandelino ecclesiam Christo ex paganis collegit, Brahmanas hæc numerorum nomina a Romanis accepisse existimavit. Haud equidem dissimulare queo, in quibusdam formam Romanis potius congruere quam Græcis, *ut septa, septem, nova, novem*. Consideremus præterea in progressione numerorum cardinalium, eorum rationem. In omnibus enim numeris cardinalibus, qui denarium proxime antecedunt, ita effari solent Indostani, *unavi, undeviginti, unatri, undetriginta, unatschahali, undequadrayinta, unapangja, undequinquaginta*. Et tametsi ejusmodi rationem Græci quoque sequuntur, tamen non video illam apud eos formam esse, quæ in Romanis Indicisque quasi ex condicto est eadem."—(Bayeri, *Hist.*

seems to me very difficult to explain these facts, but on the supposition that the Sanscrit was formed in some such way as I have conjectured. As for the Persian, some knowledge of which must have been coeval in India with Alexander's invasion, and which had probably made its way into that country at a still earlier period, it is reasonable to think, from the peculiar beauties of that language, that it would enter largely among the original elements of the Sanscrit.[1]

&c. p. 117.) After stating some other particulars which seem, at first view, to favour his friend's hypothesis, Bayer observes, "Sed quid adeo negotii cum Romanis fuerit Indis non invenio. Si Plocamus aliquis aut Romanus civis alius versatus est in India, nihil hoc adhuc efficere potuit, ut Indi a paucis peregrinis, exiguo tempore inter eos versantibus mercaturæ caussa, numeros peregrini soni addiscerent et cum suis commutarent."—(Ibid. p. 119.) But although this consideration may be conclusive against the probability of a great innovation in the *popular* language of India being effected by a few foreign merchants, it is of no force against the supposition, that many Latin words may have been incorporated with the sacred language of the priests, in consequence of an intercourse between these sages and Roman adventurers. The priests, we may presume, would always be on the watch to enrich Sanscrit with whatever improvements they could borrow from foreign tongues.

"As to the members of the human body," says Monboddo, "Mr. Wilkins has given me the names of some of them; of the foot, which is *pada*, undoubtedly the same with πούς ποδὸς of the Greeks, and of the nose, which is *nasa*, the same with the Latin word *nasus*."—(*Anc. Metaph.* vol. iv. p. 328.) To which he adds the following anecdote, which he seems to give in the words of Mr. Wilkins:—"Observing one day a three-footed stool in a pagoda, on which a statue was placed, I asked the Bramin who was with me what the name of it was in Sanscrit, and he told me it was *tripada*. And in like manner they compound the word *danta*, signifying *a tooth*, with the same number *three*, and say *tridanta*, that is, *a trident*."—Ibid. p. 330.

"And here," says Monboddo, "the reader may observe, that as the Latin is the most ancient dialect of the Greek, many of the words of the Sanscrit have a greater resemblance to the Latin than to the Greek. Thus, as I have observed before, the word *nasa*, denoting *a nose*, is plainly Latin, but entirely different from the Greek word expressing that feature of the face, which is ῥὶς."—Ibid. p. 328.

All this, I must own, appears to me to admit of a very easy explanation upon the hypothesis which I have proposed, and to be scarcely reconcilable with any other.

[1] Nor is there any necessity, as I have already hinted, for supposing that *all* the elements of the Sanscrit, as it is now taught to Europeans, entered from the beginning into the composition of that language. How much may have been since added by the subsequent improvements of the Bramins! How much *must* have been added in consequence of the intercourse which the Hindoos have since had with foreign nations! A large mixture of the Persian (and, through the medium of the Persian, of the Teutonic,) must have been the re-

There yet remains another argument, which I can conceive to have much weight with some, against the scope of the foregoing observations. In the article of the *Edinburgh Review* above referred to, I find the following sentence:—"To adopt the hypothesis of the learned Bayer, we must suppose the inhabitants of Hindustan to have waited till Alexander the Great conquered Bactria, in order to obtain appellations for the most endearing ties of nature, and to enable them to express the venerable relations of father and mother."[1]

sult of the Mahomedan conquests. Sir William Jones tells us, that "the jargon of Indostan (very improperly called the language of the Moors) contains so great a number of Persian words, that he was able, with very little difficulty, to read the fables of Pilpai, which are translated into that idiom."—(*Works of Sir William Jones*, vol. ii. p. 132.). Now, it is impossible to suppose that the popular speech should be so much adulterated with this foreign admixture, without communicating a certain portion of it to the language of the learned. The impurities formerly mentioned, which the Latin compositions of the Monkish historians of the dark ages everywhere derived from the popular languages spoken in their respective countries, afford sufficient illustrations of this remark. How, indeed, was it possible for men, accustomed to the daily use of their *kitchen-Latin*, to avoid contaminating their written style with similar barbarisms?

[1] I cannot help suspecting that the learned and respectable author of this criticism had never seen Bayer's book:—For, that Bayer did not think so meanly of the attainments of the Hindoos prior to Alexander's invasion, he has himself expressly said. His only object, he tells us, was to check that disposition which was beginning to display itself at the time he wrote, (and which has since been manifested on a much greater scale,) to refer to this people *all* the *science* and *all* the *arts* of which the Greeks are commonly reputed the authors. As I have reason to believe that his work is very seldom to be met with in this country, I shall transcribe his own words.

"Credidi autem dignam esse eruditorum hominum studio operam, cum satis appareat, artes et disciplinas in humano genere peregrinatas et aliis atque aliis in populis vel diversatas fuisse, vel domicilium collocasse, earum si nos quasi itinera investigemus. Non semper eædem gentes fuerunt vel sapientes, vel barbaræ: fuit hujusce et dedecoris et laudis quædam in genere humano vicissitudo. Neque una aliqua gens per se vidit omnia et reperit: neque quæ aliquid invenit, eadem semper perfecit aut constanter retinuit. Ne in Græcis quidem hæc statuo: quamquam, si ea gens non plurima vel prima vidit, vel expolivit, tamen nulla est alia, in qua illustriora ad fidem extent monumenta, quantum fuerit omisa. Græcorum testimonio gentes præterea recolimus sapientes, Chaldaeos, Ægyptios, Indos: ast eorum numquam mihi sese probavit oratio, qui omnia præclare inventa ad eos referrent auctores, et nescio quid immensæ scientiæ et omni quidem ævo in iis fuisse prædicarent. Si hujus tantæ existimationis causam requiratis, fastidium est rerum notarum: ita fit, ut, quæ non satis sint cognita, ea ubi in mentem venerit aliquo in loco

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The hypothesis of Bayer here alluded to is, I presume, that which I already mentioned, as forming one of the leading positions in his *Historia Regni Græcorum Bactriani*, That the Indians borrowed some things from the Greeks, which the Greeks have been more generally supposed to have borrowed from the Indians.

esse habenda, tanto cupidius efferamus, quo minus cognoscuntur. Itaque Græcos ab iisdem nonnulla accepisse, ultro et lubenter quidem concedo: modo item alii eosdem populos a Græcis quædam cum ut nova et inchoata, tum prope consummata accepisse consentiant."—Bayeri *Hist.* &c. in præfat.

From this extract, it appears that the opinion of Bayer, with respect to the history of the sciences in general among the Indians, coincides remarkably with that which, after long deliberation, has been formed with respect to astronomy in particular, by the illustrious La Place. "M. La Place," says his learned friend M. Delambre, "qui avoit quelque intérêt à soutenir la grande ancienneté de l'Astronomie Indienne, et qui avoit d'abord parlé des mouvemens moyens et des époques des Hindous de la manière la plus avantageuse, a fini pourtant par croire et imprimer que leurs tables ne remontent pas au-delà du 13me Siècle." —Letter of M. Delambre to the late Quintin Crawford, dated July 21, 1815, quoted in Mr. Crawford's *Researches concerning the Laws, &c. of India.* London, 1817.

While La Place, however, thus rejects the extravagant conclusions of Bailli, he readily admits that the Indians have cultivated successfully astronomy, and some other branches of Mathematics, from the earliest periods of which we have any authentic accounts. "Cependant l'antique réputation des Indiens ne permet pas de douter qu'ils aient dans tous les temps cultivé l'astronomie. Lorsque les Grecs et les Arabes commencèrent à se livrer aux sciences, ils allèrent en puiser chez eux les premiers élémens. C'est de l'Inde que nous vient l'ingénieuse méthode d'exprimer tous les nombres avec dix caractères, en leur donnant à-la-fois une valeur absolue et une valeur de position; idée fine et importante, que nous en sentons à peine le mérite. Mais cette simplicité même, et l'extrême facilité qui en résulte pour tous les calculs, place notre système d'arithmétique au premier rang des inventions utiles; et l'on appréciera la difficulté d'y parvenir, si l'on considère qu'il a échappé au genie d'Archimède et d'Apollonius, deux des plus grands hommes dont l'antiquité s'honore."—*Exposition du Système du Monde*, livre v. chap. i.

The reference which the Edinburgh Reviewer has made to the name of Bayer, and the deference due to the slightest hint concerning the literature of the East, which is sanctioned by the authority of Mr. Hamilton, will, I trust, be a sufficient apology for the length of this note.

The charge which Mr. Hamilton has brought against Bayer, of undervaluing the early advances which the Hindoos are said to have made in the sciences, might, with far greater justice, have been urged against Meiners, who has gone so far as to assert, "Ante Alexandri ætatem nullas inter Indos literas, neque veram philosophiam extitisse."—(*Historia de Vero Deo*, p. 107.) This opinion is, I think, sufficiently refuted by the universal testimony of antiquity.

Before I proceed to take any notice of this remark, in so far as it may be supposed to invalidate my own conjectures, I think it proper to observe, in the first place, in justice to Bayer, that I can see no foundation whatever in his work for the criticism above quoted, inasmuch as his argument is confined almost entirely to the names of numbers, the system of numeration, and a few other matters of a scientific nature. So far as I can recollect, the words expressing the different relations of consanguinity are not once alluded to.

But, admitting the criticism to be conclusive against Bayer's hypothesis, it can in no way affect mine; as it by no means follows, from the similarity between the Sanscrit names for particular objects, and those in Greek, that the Indians, till the Invasion of Alexander, had no words of the same import in their native tongue. With the choice of different languages, which I have supposed the manufacturers of the Sanscrit to have had before them, it must have depended on the most trifling accidents, often upon mere caprice, to which of them they gave the preference on particular occasions in making their selections. Probably much would depend upon the sound that was most agreeable to the ear, or that suited best with their system of prosody; and much also upon the combination of letters which their organs were fitted to pronounce most easily.

In the foregoing conjectures, I have not thought it necessary to attend to the distinction pointed out by some writers, between *Brahmans* and *Bramins*, or to allude to the question, whether the worship of Boodh or that of Brahma was prior in order of time.[1] It is sufficient for my argument, if it be

[1] See Pinkerton's *Geography*, vol. i. p. 713.

Mr. Crawford does not seem to have considered the difference between Brahmans and Bramins as very wide. "If we compare the *Bramins* of the present day, with the *Brahmans* of antiquity, we shall, in every feature of their character, perceive the strongest resemblance. The difference that may exist between them, may partly have insensibly taken place in the lapse of time; but must chiefly be ascribed to the revolutions that have happened in their government. The words are evidently the same, and derive their origin from *Brahma, God*."—*Sketches, &c. of the Hindoos*, p. 190.

granted that a learned, artful, and aspiring priesthood existed (at least in embryo)[1] at the time of Alexander's conquest. And of this, the following circumstance mentioned by Strabo, on the authority of Onesicritus, (who was an eye and ear-witness of the facts in question,) is a sufficient proof:—That Alexander, being desirous to obtain some information concerning the tenets and manners of the *Brachmans*, resolved to send *Onesicritus* to converse with them; as he was given to understand, that if they were summoned to attend *him*, they would decline to obey the invitation, on the pretence that, They who wished for instruction should repair to those from whom they expected to receive it.[2]

[1] I have said, *at least in embryo;* for although it does not appear from Strabo's account that, at the period in question, the Brahmans formed a distinct or Levitical tribe, possessing the unlimited influence in India which they afterwards acquired, yet it is plain from the particulars he mentions with respect to the studies to which these *Sophists* addicted themselves; their eagerness to attract notice by the singularity of their manners; and, above all, by their high pretensions in point of consequence, that they were already aiming systematically, and not without success, to attain an undue ascendant over the minds of their countrymen.

The following is the account of the Bramins given by Arrian in his *Indian History*:—(Not having the original at hand, I quote from Mr. Rooke's translation.)—"The Indians are chiefly distinguished into seven ranks or classes among themselves, one of which is their *Sophists* or wise men; these are much inferior to all the rest in numbers, but vastly superior to them in honour and dignity. They are never required to do any bodily labour, nor do they contribute anything out of their gains towards the support of the public; nor, indeed, have they any manner of occasion to work at all, their only business being to offer sacrifices for the public welfare: and if any person sacrifices privately, some of these Sophists are employed to show him the way and manner thereof, otherwise they imagine the gods would not accept his sacrifice. They are, moreover, the only diviners throughout all India, neither are any suffered to practise the art of divination except themselves. They never meddle with private affairs, either because they think that the art of divination extends not to inferior things, or, perhaps, because they think it beneath their art to stoop to trifles."—Arrian's *Indian History*, chapters x. and xi., translated by Mr. Rooke, vol. ii. pp. 222, 223.

[2] The account given by Strabo of the motives which decided the conduct of Alexander on this occasion, does honour to his prudence and forbearance. [To quote the version corrected by Casaubon:] "Proinde cum essent tales, neque sibi decorum putaret Alexander ad illos accedere, nec vellet invitos cogere ut quicquam facerent præter patria instituta; se missum inquit," &c.—Strabo, lib. xv. Amstel. edit. p. 715, [et edit. Casauboniana, Lut. Paris. 1620, p. 715.]

The following particulars relating to the question about the priority of Brahmanism and Boudhism may, to some readers, be objects of curiosity. I quote them from a very interesting paper on the religion and literature of the Burmahs, by Dr. Francis Buchanan.[1] "Mr. Chambers, *the most judicious of our Indian Antiquaries*, has given good reason for believing that the worship of *Bouddha* once extended over all India, and was not rooted out by the Brahmans in the Deccan so late as the ninth, or even as the twelfth century of the Christian Æra."[2] The same author (Dr. Buchanan) has elsewhere remarked, that "however idle and ridiculous the legends and notions of the worshippers of Bouddha may be, they have been in a great measure adopted by the Brahmans, but with all their defects monstrously aggravated; Rajahs and Heroes are converted into gods, and impossibilities are heaped on improbabilities."[3]

Appendix I.

Before the reader pronounces a decisive opinion on the conjectures which I have now submitted to his consideration, I must request his earnest attention to the long extract which follows. It contains the most ample and candid acknowledgment by Mr. Wilford, of the frauds which had been successfully practised on himself by certain Bramins, of whose assistance he had availed himself in the prosecution of his researches. I shall transcribe the passage in his own words, as I think they cannot fail to shake the faith of every person who peruses them with attention, in the *unfathomable antiquity of the Sanscrit*, as well as in whatever other information is derived to us through so very suspicious a channel as that of the Hindoo priesthood. The palinode of Major Wilford has been long before the public; but it has attracted much less attention than the fictions which he has so honourably disavowed.

"A fortunate, but, at the same time, a most distressful discovery contributed to delay the publication of this paper.

[1] *Asiatic Researches*, vol. vi. [2] Ibid. p. 163. [3] Ibid. p. 166.

Though I never entertained the least doubt concerning the genuineness of my vouchers, (having cursorily collated them with the originals a little before I had completed my *Essay*,) yet when I reflected how cautious an author ought to be, and how easily mistakes will take place, I resolved once more to make a general collation of my vouchers with the originals, before my *Essay* went out of my hands. This I conceived was a duty which I owed not only to the public, but to my own character.

"On going on with the collation, I soon perceived, that, whenever the word *S'wetam*, or *S'weta-dwipa*,[1] the name of the principal of the Sacred Isles, and also of the whole cluster, was introduced, the writing was somewhat different, and that the paper was of a different colour, as if stained. Surprised at this strange appearance, I held the page to the light, and perceived immediately that there was an erasure, and that some size had been applied. Even the former word was not so much effaced, but that I could sometimes make it out plainly. I was thunderstruck, but felt some consolation in knowing, that still my manuscript was in my own possession. I recollected my *Essay on Egypt*, and instantly referred to the originals which I had quoted in it; my fears were but too soon realized, the same deception, the same erasures appeared to have pervaded them. I shall not trouble the Society with a description of what I felt, and of my distress at this discovery. My first step was to inform my friends of it, either verbally, or by letters, that I might secure, at least, the credit of the first disclosure.

[1] For the sake of those who are not acquainted with the speculations of Major Wilford, it is proper to mention, that his great object is to prove that the Sacred Isles of the Hindoos are the British Isles, and, in particular, that S'weta-dwipa, or the *White Island*, is England.

"The Sacred Isles in the west," he informs us, "of which S'weta-dwipa, or the White Island, is the principal and the most famous, are, in fact, the Holy Land of the Hindus. There the fundamental and mysterious transactions of the history of their religion, in its rise and progress, took place. The White Island, this Holy Land in the west, is so intimately connected with their religion and mythology, that they cannot be separated: and, of course, divines in India are necessarily acquainted with it, as distant Muselmans with Arabia." —*Asiatic Researches*, vol. viii. 8vo edit. p. 246.

"When I reflected that the discovery might have been made by others, either before or after my death; that, in the one case, my situation would have been truly distressful; and that, in the other, my name would have passed with infamy to posterity, and increased the calendar of imposture, it brought on such paroxysms, as threatened the most serious consequences in my then infirm state of health. I formed, at first, the resolution to give up entirely my researches and pursuits, and to inform government and the public of my misfortune. But my friends dissuaded me from taking any hasty step; and advised me to ascertain, whether the deception pervaded the whole of the authorities cited by me, or some parts only. I followed their advice, and having resumed the collation of my vouchers with unexceptionable manuscripts, I found that the impositions were not so extensive as I had apprehended.

"The nature of my inquiries and pursuits was originally the source of this misfortune. Had they been confined to some particular object, to be found within the limits of a few books, as astronomy, it could never have taken place; but the case was very different. The geography, history, and mythology of the Hindus, are blended together, and dispersed through a vast number of voluminous books, in which prevails a most disgusting confusion and verbosity. Besides, the titles of their books have seldom any affinity with the contents; and I have often found most valuable materials in treatises, the professed subject of which was of the most unpromising nature.

"Thus, when I began to study the Sanscrit language, I was obliged to wade with difficulty through ponderous volumes, generally without finding anything valuable enough to reward me for my trouble. But in the course of conversation, my Pandit, and other learned natives, often mentioned most interesting legends, bearing an astonishing affinity with those of the western mythologists.

"I consequently directed my Pandit to make extracts from all the *Puránás*, and other books relative to my inquiries, and

to arrange them under proper heads. I gave him a proper establishment of assistants and writers, and I requested him to procure another Pandit to assist me in my studies; and I obtained, for his farther encouragement, a place for him in the College at Benares. At the same time, I amused myself with unfolding to him our ancient mythology, history, and geography. This was absolutely necessary as a clue to guide him through so immense an undertaking, and I had full confidence in him. His manners were blunt and rough, and his arguing with me on several religious points with coolness and steadiness, (a thing very uncommon among natives, who, on occasions of this sort, are apt to recede, or even coincide in opinion,) raised him in my esteem. I affected to consider him as my *Guru*, or spiritual teacher; and at certain festivals, in return for his discoveries and communications, handsome presents were made to him and his family.

"The extracts which I thus received from him I continued to translate, by way of exercise, till, in a few years, this collection became very voluminous. At our commencement I enjoined him to be particularly cautious in his extracts and quotations, and informed him that, if I should, at a future period, determine to publish anything, the strictest scrutiny would take place in the collation. He seemed to acquiesce fully in this; and we went on without any suspicion on my part, until Sir William Jones strongly recommended to me to publish some of my discoveries, particularly respecting Egypt. I collated immediately all my vouchers relating to that country, carefully revised my translations, selected the best passages, compared them with all the fragments I could find among our ancient authors, and framed the whole into an Essay. I then informed my Pandit, that, previously to my sending it to Sir William Jones, a most scrupulous collation of the vouchers with the original manuscripts from which they were extracted, would take place.

"To this, without the least alteration in his countenance, nay, with the greatest cheerfulness, he assented; and, as several months intervened, he had time to prepare himself, so that,

when the collation took place, I saw no ground to discredit his extracts, and was satisfied.

"I have since learned that, as the money for his establishment passed through his hands, his avaricious disposition led him to embezzle the whole, and to attempt to perform the task alone, which was impracticable. In order to avoid the trouble of consulting books, he conceived the idea of framing legends from what he recollected of the *Puránás, and from what he had picked up in conversation with me.* As he was exceedingly well read in the *Puránás* and other similar books, in consequence of his situation with a Mahratta chief of the first rank in his younger days, it was an easy task for him, and he studied to introduce as much truth as he could, to obviate the danger of immediate detection.

"Many of the legends were very correct, except in the name of the country, which he generally altered into that of either Egypt or *S'wétam.*

"His forgeries were of three kinds. In the first, there was only a word or two altered; in the second, were such legends as had undergone a more material alteration; and, in the third, all those he had written from memory.

"With regard to those of the first class, when he found that I was resolved to make a collation of the manuscripts, he began to adulterate and disfigure his own manuscript, mine, and the manuscripts of the college, by erasing the original name of the country, and putting that of Egypt, or *S'wétam,* in its place.

"To prevent my detecting those of the second class, which were not numerous, but of the greatest importance in their nature; and as books in India are not bound as in Europe, and every leaf is loose, he took out one or two leaves, and substituted others with an adulterous legend. In books of some antiquity, it is not uncommon to see a few new leaves inserted in the room of others that were wanting.

"To conceal his impositions of the third class, which is the most numerous, he had the patience to write two voluminous sections, supposed one to belong to the *Scanda-puráná,* and the other to the *Brahman'-da,* in which he connected all the

legends together in the usual style of the *Puránás*. These two sections, the titles of which he borrowed, consist, as he wrote them, of no less than 12,000 *slocas* or lines. The real sections are so very scarce, that they are generally supposed to be lost, and probably are so, unless they are to be found in the library of the Rajah of *Jayanágar*. Other impostors have had recourse to the *Scanda*, *Brahmánda*, and *Padma-puránás*, a great part of which is not at present to be found; and for that reason these are called the *Puránás of thieves and impostors*, though the genuineness of such parts as are in common use has never been questioned. Some persons attempted, by such means, to deceive the famous *Jayasinha*, and the late *Ticatraya*, prime minister of the Nabob of *Oude*. They were discovered, lost their appointments, and were disgraced.

"My chief Pandit had certainly no idea, in the first instance, that he should be driven to such extremities. I used (as already remarked) to translate the extracts which he made for me by way of exercise, and never thought, at that time, of comparing them with the originals; first, because I had no reason to doubt their authenticity; and, secondly, because it would have been soon enough to make the collation when I had determined to publish any part of them.

"This apparently lulled him into security; but, being afterwards sensible of the danger of his detection, he was induced to attempt the most daring falsification of the originals, in order, if possible, to extricate himself. When discovered, he flew into the most violent paroxysms of rage, calling down the vengeance of Heaven, with the most horrid and tremendous imprecations, upon himself and his children, if the extracts were not true. He brought *ten Brahmins*, not only as compurgators, but also to swear, by what is most sacred in their religion, to the genuineness of these extracts. After giving them a severe reprimand for this prostitution of their sacerdotal character, I, of course, refused to allow them to proceed.

"And here I shall close the recital of what relates personally to a man whose course of imposition I have deemed incumbent on me to lay before the public. He came to me in dis-

tress, but with a fair reputation; he is now in affluence, but with a character infamous for ingratitude, and fraud, and deceit. His voluminous extracts are still of great use to me, because they always contain much truth; and the learned, therefore, have not been misled in their general conclusions from my *Essay on Egypt;* though it would be dangerous for any one to use detached passages, and apply them to any particular purpose. In the course of my present work, I have collected carefully what I could find in India concerning Ethiopia and Egypt."[1]

Mr. Wilford seems to have thought, from a passage already quoted, that his countrymen were much less liable to be imposed upon in examining the astronomical records of the Hindoos, than in perusing those manuscripts which were the objects of his researches. But, from the inquiries of Mr. John Bentley, it would appear that, even in the astronomical department, frauds of a great magnitude have been practised, and with no inconsiderable success. The inquiries to which I allude are contained in his *Essay on the Antiquity of the Surya-Siddhanta,* printed in the sixth volume of the *Asiatic Researches,* (8vo ed.) The *Surya-Siddhanta,* it is proper to premise, is generally believed to be the most ancient astronomical treatise the *Hindus* have; and, according to their notions, is supposed to have been received through Divine revelation at the close of the *Satya-yug,* of the 28th *Maha-yug,* of the 7th *Manwantara;* that is, about 2,168,899 years ago. After a variety of calculations with respect to the formation of the astronomical cycles contained in this ancient monument, Mr. Bentley proceeds thus:—

"But, independent of all calculations, we know from *Hindu* books the age in which the *Surya-Siddhanta* was written, and by whom. In the commentary on the *Bhasvoti,* it is declared that *Vara'-ha* was the author of the *Surya-Siddhanta.* The *Bhasvoti* was written in the year 1021 of *Saka,* by one *Sotanund,* who, according to *Hindu* accounts, was a pupil of

[1] *An Essay on the Sacred Isles of the West,* &c. &c. &c., by Captain F. Wilford.—*Asiatic Researches,* vol. viii. p. 247, *et seq.,* 8vo edition.

Vara'-ha, under whose directions he himself declares he wrote that work. Consequently *Vara'-ha* must have been then alive, or else a very short time before it; which agrees, as near as possibly can be, with the age above deduced; for the *Bhasvoti*, in 1799, will be exactly 700 years old." . . . . "From what has been said above, it appears extremely probable, that the name of *Vara'-ha* must have been to the *Surya-Siddhanta* when it was first written, and the author well known; but that after his death priestcraft found means to alter it, and to introduce the ridiculous story of *Meya* or *Moya*, having received it through Divine revelation at the close of the *Satya-yug;* upon which petty fiction its present pretended antiquity is founded. But this, it seems, was not the only pious fraud committed by the crafty sons of *Brahma*, for it appears that a number of other astronomical works were then framed, calculated also for the purpose of deception. Among these, some were pretended to be delivered from the mouth of one or other of their deities, as the *Brahma-Siddhanta*, *Vishnu-Siddhanta*, and the works of *Siva*, commonly called *Toutros*," &c. &c. &c.

On this extract any comment would be superfluous. I shall therefore only subjoin the following query, which, essential as it obviously is to the decision of the question, has not yet, so far as I know, received an answer; nor, indeed, am I aware that it ever has been put by any of the numerous authors who have treated of Indian literature, with the single exception of Mr. Pinkerton, in his *Geography*.[1] Upon what sort of materials are the most ancient records of Sanscrit learning preserved, and by what *criteria* are the Bramins enabled to judge of the antiquity of manuscripts? According to the best

[1] The following are Mr. Pinkerton's words:—"The Hindoos are ignorant of the Chinese art of printing, and the materials used in their manuscripts seem very perishable; nor have we any rules for determining the antiquity of these manuscripts. To an exact inquirer this would have been the first topic of investigation; but it has, on the contrary, been completely neglected. We have merely the bold assertions of Bramins, eagerly imbibed by European credulity, instead of successive arguments and proofs."—(Vol. i. p. 718.) "The Bramins," he adds, "are more conversant in quadrillions, trillions, and billions, than in discussing the little dates of European scholars."—Ibid. p. 739.

accounts, they have none of these tests to which European scholars and antiquaries are accustomed to have recourse on similar occasions. Dr. Francis Buchanan, the accuracy of whose details on all matters which fell under his personal observation in India is universally admitted, informs us, that "the greater part of the Bengal manuscripts, owing to the badness of the paper, require to be copied at least once in ten years, as they will in that climate preserve no longer." He observes farther, "Every copyist, it is to be suspected, adds to old books whatever discoveries he makes, relinquishing his immediate reputation for learning, in order to promote the grand and profitable employment of his sect, the delusion of the multitude."[1]

Appendix II.

The historical detail into which I have entered, (see pages 81-83,) with respect to the ancient intercourse between the Greek colony at Bactriana, and the inhabitants of Hindostan, throws a strong light upon Gibbon's conjecture concerning the source of Indian science. When we consider how long the intercourse between Greece and India subsisted, we must be satisfied, not only of the probability of a great influx of light from the former country into the latter, but of the absolute impossibility that this should not have taken place. Even in the army which accompanied Alexander, we may safely assume, that there were many well acquainted with all the philosophical opinions of the Grecian schools. With the history of one learned individual, rendered memorable by Alexander's cruelty, every reader is acquainted. I allude to Callisthenes, the

[1] *Essay on the Literature of the Burmas.*—*Asiatic Researches*, vol. vi. 8vo edit. p. 174.

Having given so much countenance to the doubts which have been raised with respect to the records of Indian literature, it is but fair to direct the attention of the reader to what has been very ably urged on the opposite side of the question by Mr. Colebrooke, in a paper on the *Vedas, or Sacred Writings of the Hindus.*—*Asiatic Researches*, vol. viii. p. 377.

nephew of Aristotle, who, I think, may not unreasonably be conjectured to have been one of those who instructed the Bramins in the use of the syllogism. Sir William Jones, indeed, seems to lean to the opposite supposition, for he mentions "a tradition which prevailed, according to the well-informed author of the *Dabistan*, in the *Panjab*, and in several Persian provinces, that, among other Indian curiosities which Callisthenes transmitted to his uncle, was a technical system of logic, which the Bramins had communicated to the *inquisitive Greek*, and which the Mahomedan writer supposes to have been the ground-work of the famous Aristotelian method." But, surely, if the name of Callisthenes was anyhow coupled in the Indian traditions with the syllogistic logic, it is much more probable that he was remembered rather as the person who first introduced into India a knowledge of that art, than as an *inquisitive Greek*, distinguished, during his stay with Alexander's army, by his logical curiosity. In the former case his memory must necessarily have been revered among the learned; in the latter case, his name, if at all heard of, was not likely to produce any permanent impression.

To this we may add, the utter impossibility that Callisthenes should have alone acquired his syllogistic knowledge, while all the rest of Alexander's army remained totally ignorant upon the subject; and the absurdity of supposing that Aristotle should venture to lay claim to this invention as his own, when so many of his countrymen were still alive who could so easily expose the falsehood of his pretensions.

The question, whether the Indians derived their knowledge of the syllogism from Greece, or the Greeks from India, I had occasion to start in the second volume of this work. The more I reflect on the subject, I am the more convinced of the improbability of the latter supposition; and, indeed, the considerations stated above, seem to me to afford evidence little short of demonstration, that the thing was impossible. I am disposed to extend the same opinion to all the branches of moral science; in particular, to the various ethical systems which were taught in the Grecian schools. Amongst all the mutual

charges which were urged against each other by these rival sects, it does not appear that any of them were accused of having stolen their doctrines from abroad.

I shall only observe farther on this head, that the different ethical systems of the Greeks were plainly indigenous plants of the soil, being the natural result (as has been shown most ingeniously by Mr. Smith in his *Theory of Moral Sentiments*) of the turbulent and unsettled state of society in the Grecian commonwealths. That these systems, particularly that of the Stoics, should have sprung up among the inhabitants of Hindostan, is hardly conceivable, in consistence with the accounts that have been handed down to us from the earliest ages of their quiet, submissive, and pacific character.[1]

The question concerning the antiquity of the Indian astronomy, and other branches of mathematical science, is much more problematical, and must be decided upon other *data*. But it appears to me, that the extraordinary coincidence remarked by Sir William Jones, between the tenets of the Hindoo sects upon moral subjects, and those professed by the different sects in ancient Greece, can be accounted for in no other way, so simple and satisfactory, as that suggested by Gibbon.*

[1] See Smith's *Theory of Moral Sentiments*, vol. ii.

* [See the *Dissertation.—Works*, vol. i. pp. 425-427, for some speculations of the author in regard to the derivation of Indian Philosophy from the Greeks of Bactriana, and, in particular, to the factitious origin of the Sanscrit language. At a subsequent period, but still prior to the publication of this volume, Mr. Stewart elaborated these speculations more regularly; for there remains in manuscript a formal treatise, entitled—"*Conjectures concerning the Origin of the Sanscrit*"—(written in the end of 1824 and beginning of 1825)." It is in quarto, fairly copied out, and extends to ninety-one pages. But, however ingeniously the hypothesis of this origin is supported, it is so adverse to the harmonious opinion now entertained by those best qualified to judge, and is, withal, beset with so many difficulties, apparently insuperable, that I have not thought it right to publish it as an Appendix to the present volume.—*Ed.*]

CHAPTER II.

OF THE PRINCIPLE OR LAW OF SYMPATHETIC IMITATION.

SECTION I.—OF OUR PROPENSITY TO THIS SPECIES OF IMITATION.

The subject of Language leads, by a natural transition, to that of Imitation; a principle of human nature to which children owe their first acquisitions in the art of speech, and which, in every period of life, exerts a very powerful influence over our accent, mode of pronunciation, and forms of expression. It is not, however, solely or even chiefly on this account, that I introduce the subject of Imitation here. The view which I mean to take of it relates principally to some other phenomena of our constitution, which, though equally important, have been hitherto much less attended to by philosophers. The phenomena, indeed, which I first mentioned, are matter of daily experience, and force themselves on the notice of the most careless observer.

In ranking Imitation among the original principles or ultimate facts in our constitution, it is, I presume, scarcely necessary for me to observe, that I do not use that term exactly in the popular sense in which it is commonly understood. I do not suppose, for example, that it is in consequence of any instinctive or mysterious process, that a painter or an author forms his taste in painting or in writing, on the models exhibited by his predecessors; for all this may obviously be resolved, in the most satisfactory manner, into more simple and general laws. The imitation of which I am here to treat, and

which I have distinguished by the title of *Sympathetic*, is that chiefly which depends on the mimical powers connected with our *bodily frame;* and which, in certain combinations of circumstances, seems to result, with little intervention of our will, from a sympathy between the bodily organizations of different individuals.[1] Of various particulars connected with this class of phenomena, philosophy, I suspect, will never be able to give a complete explanation.[2]

[1] In Buffon's *Natural History*, there is a passage from which one would be apt to conclude, at first sight, that he had in view the distinction between the two different kinds of imitation which I have here attempted to point out; and that what he calls *l'Imitation Machinale*, corresponds exactly to what I have called *Sympathetic Imitation*. On a more attentive examination, however, it will be found that by this phrase he means nothing more than the cause which gives rise to the uniformity in the operations of instinct among animals of the same species; a cause which, according to Buffon, consists merely in the uniformity of their organization, and which, therefore, can with no propriety be denominated *Imitation*, without departing entirely from all the common meanings of that word.

"D'ailleurs il faut distinguer deux sortes d'imitation, l'une réfléchie et sentie, et l'autre *machinale* et sans intention; la première acquise, et la seconde, pour ainsi dire, innée; l'une n'est que le résultat de l'instinct commun répandu dans l'espèce entière, et ne consiste que dans la similitude des mouvemens et des opérations de chaque individu, qui tous semblent être induits ou contraints à faire les mêmes choses; plus ils sont stupides, plus cette imitation tracée dans l'espèce est parfaite: un mouton ne fait et ne fera jamais que ce qu'ont fait et font tous les autres moutons: la première cellule d'une abeille ressemble à la dernière; l'espèce entière n'a pas plus d'intelligence qu'un seul individu, et c'est en cela que consiste la différence de l'esprit à l'instinct; ainsi l'imitation naturelle n'est dans chaque espèce qu'un résultat de similitude, une nécessité d'autant moins intelligente et plus aveugle qu'elle est plus également répartie: l'autre imitation qu'on doit regarder comme artificielle, ne peut ni se répartir, ni se communiquer à l'espèce; elle n'appartient qu'a l'individu qui la reçoit, qui la possède sans pouvoir la donner; le perroquet le mieux instruit ne transmettra pas le talent de la parole à ses petits."—Buffon, *Hist. Nat.* I am sorry that I cannot at present refer to the particular passage. [See *Hist. Nat.* tom. xiii. p. 4, edit. orig.—*Ed.*]

[2] Whether our propensity to this bodily imitation be, or be not, resolvable into that which gives origin to the imitative arts, I shall not here inquire. Mr. Burke considers both propensities as the same principle, and as an ultimate fact in our nature. "As sympathy makes us take a concern in whatever men feel, so imitation prompts us to copy whatever they do; and, consequently, we have a pleasure in imitating, and in whatever belongs to imitation, merely as it is such, without any intervention of the reasoning faculty. It is by imitation, far more than by precept, that we learn everything. This forms our manners, our opinions, our lives. Herein it is that painting, and many other agreeable arts, have laid one of the principal foundations of their power."—

In general, it may be remarked that whenever we see, in the countenance of another individual, any sudden change of features, more especially, such a change as is expressive of any particular passion or emotion, our own countenance has a tendency to assimilate itself to his.[1] Every man is sensible of this when he looks at a person under the influence of laughter, or in a deep melancholy. Something, too, of the same kind, takes place in that spasm of the muscles of the jaw, which we experience in yawning; an action which is well known to be frequently excited by the contagious power of example. Even when we *conceive* in solitude, the external expression of any passion, the effect of the conception is visible in our own

Essay on the Sublime and Beautiful, [sect. xvi.]

In order to prevent misapprehensions of Mr. Burke's meaning, it may be proper to remind my readers, that he is here speaking of the *propensity* to imitation, and of the *pleasure* connected with imitation, not of the *power* to imitate, or of the *means* by which we carry our propensity into effect. To speak of *this power* or of *these means* (when considered with a reference to the imitative arts) as incapable of analysis, would be a manifest absurdity. As for the *propensity* and the *pleasure*, Mr. Burke plainly considered them as general laws of our constitution, both as they are exhibited in the bodily imitation of the individual, and in the arts of painting and poetry. In the former of these cases (which is the only one that falls under our present examination) I am not ashamed to acknowledge that the *propensity* and the *power* are, to me, equally inexplicable.

Mr. Burke concludes his very short and superficial section on this subject with observing, that "Aristotle has spoken so much and so solidly upon the force of imitation in his *Poetics*, that it makes any farther discourse upon it the less necessary." It is almost superfluous for me to add, that the design of Aristotle's treatise did not lead him to touch, in the slightest manner, on that species of imitation which I am now attempting to illustrate. He appears, however, as well as Burke, to have included it in the general idea which he annexed to the word; and (like him) to have thought it unnecessary to particularize any of the circumstances by which it is so remarkably distinguished from everything else to which the same appellation is applied.

"Imitation is congenial with man from his infancy. One of his characteristic distinctions from other animals, is the being most addicted to it, acquiring his knowledge by it, and delighting in every species of it. A proof of this may be drawn from the works of art, where those things which we see with pain in themselves, we delight to see represented as accurately as possible; such as the figures of the most savage wild beasts, and of dead bodies."—*The Poetics of Aristotle*, chap. iv. translated by Mr. Pye.

[1] "Ut ridentibus adrident, ita flentibus adflent
Humani vultus."—
Horace, *Ars Poet.* [101.]

appearance. This is a fact of which every person must be conscious, who attends, in his own case, to the result of the experiment; and it is a circumstance which has been often remarked with respect to historical painters, when in the act of transferring to the canvass the glowing pictures of a creative imagination.

If this general fact be admitted, it will enable us to account for a phenomenon, which, although overlooked by most men from its familiarity, cannot fail to suggest an interesting subject of speculation to those who reflect on the circumstances with due attention. What I allude to is, that a mimic, without consulting a mirror, knows, by a sort of consciousness or internal feeling, the moment when he has hit upon the resemblance he wishes to exhibit. This phenomenon (which has always appeared to me an extremely curious and important one) seems to be altogether inexplicable, unless we suppose, that, when the muscles of the mimic's face are so modified as to produce the desired combination of features, he is conscious, in some degree, of the same feeling or sensation which he had, when he first became acquainted with the original appearance which he has been attempting to copy.

Nor is it the *visible* appearance alone of others, that we have a disposition to imitate. We copy instinctively the voices of our companions, their tones, their accents, and their modes of pronunciation. Hence that general similarity in point of air and manner, observable in all who associate habitually together, and which every man acquires in a greater or less degree; a similarity unheeded, perhaps, by those who witness it daily, and whose attention, accordingly, is more forcibly called to the nicer shades by which individuals are discriminated from each other; but which catches the eye of every stranger with incomparably greater force than the specific peculiarities which, to a closer observer, mark the endless varieties of human character.

The influence of this principle of imitation on the outward appearance is much more extensive than we are commonly disposed to suspect. It operates, indeed, chiefly on the air and

movements, without producing any very striking effect on the material form in its quiescent state. So difficult, however, is it to abstract this form from its habitual accompaniments, that the members of the same community, by being accustomed to associate from their infancy in the intercourse of private life, appear, to a careless observer, to bear a much closer resemblance to each other than they do in reality; while, on the other hand, the physical diversities which are characteristical of different nations, are, in his estimation, proportionally magnified.

The important effects of the same principle, when considered in relation to our *moral* constitution, will afterwards appear. At present, I shall only remark, that the reflection which Shakspeare puts into the mouth of Falstaff, with respect to the manners of Justice Shallow and his attendants, and which Sir John expresses with all the precision of a philosophical *observer*, and all the dignity of a moralist, may be extended to the most serious concerns of human life. "It is a wonderful thing to see the semblable coherence of his men's spirits and his: they, by observing of him, do bear themselves like foolish justices; he, by conversing with them, is turned into a justice-like serving-man. Their spirits are so married in conjunction, with the participation of society, that they flock together in concert, like so many wild geese. It is certain, that *either wise bearing or ignorant carriage is caught, as men take diseases, one of another;* therefore let men take heed to their company."

Of this principle of our nature, Count Rumford appears to have availed himself, with much address, in his House of Industry at Munich. "In order to inspire the rising generation with an early bias towards labour, he invited parents to send their children to the establishment, before they were old enough to do any kind of work, and actually paid them for doing nothing, but merely being present, when others were busy around them. These children (he tells us) were placed upon seats built around the halls where other children worked, while *they* were obliged to remain idle spectators; and in this

situation, they soon became so uneasy at their own inactivity, that they frequently solicited, with great importunity, to be employed; and often cried bitterly if this favour was not instantly granted." A variety of motives, it is true, were in all probability here concerned; but much, I think, must be ascribed to sympathy and to imitation.

It is, in consequence of this imitative propensity, that children learn, insensibly, to model their habits on the appearance and manners of those with whom they are familiarly conversant. It is thus too that, with little or no aid on the part of their instructors, they acquire the use of speech; and form their pliable organs to the articulation of whatever sounds they are accustomed to hear.[1]

As we advance to maturity, the propensity to imitation grows weaker,—our improving faculties gradually diverting our attention from the models around us, to ideal standards more conformable to our own taste; whilst, at the same time, in consequence of some physical change in the body, that flexibility of the muscular system, by which this propensity is enabled to accomplish its end, is impaired or lost. The same combinations of letters, which a child of three or four years of age utters without any apparent effort, would, twenty years afterwards, present to him a difficulty not to be surmounted by the most persevering industry. A similar inflexibility, it may be reasonably presumed from analogy, is acquired by those muscles on which depend the imitative powers of the face, and of all the other parts of our material frame.

If this observation be well founded, it is by no means a fair

[1] This branch of the subject well deserves a more particular examination. In learning to articulate words, children, it is not to be doubted, avail themselves both of the eye and of the ear. But I am inclined to think they avail themselves chiefly of the latter. For blind children, I understand, articulate distinctly, as early, at least, as those who see; perhaps, in general, they will be found to do so still earlier. Deaf children, on the other hand, are invariably dumb. Indeed I cannot imagine how the eye should assist infants in imitating any sounds, excepting the vowels and the labial consonants; and hence, perhaps, the first names by which they distinguish their parents, in most, if not in all languages. In all the other letters the different conformations of the organs of speech must be concealed from their observation.

experiment to attempt the education of a savage child of seven or eight years old, with the view of ascertaining how far it is possible to assimilate his air and manner to those of a polished European or Anglo-American. Long before this age, many of his most important habits are fixed, and much is lost of that mobility of his system, by which the principle of imitation operates. Such an individual, therefore, will retain through life that characteristical expression of the savage state, which is so apt to shock our feelings at the supposition of his common origin with ourselves. Nor is this all. Such an individual will, through life, find himself out of his element, in a society of which he can so imperfectly acquire the manners; and if, by accident, in maturer years, he should visit the scenes to which he was accustomed in early infancy, it is not improbable that he may willingly reassume habits of which he has lost the recollection, but which are to him a second nature, by being coeval with his existence.

In speculations concerning the varieties of the human race, too little attention has been, in general, bestowed on the influence exercised by the mind over the external expression. In consequence of this influence, it will be found that no inconsiderable diversities in the form and aspect of man arise from the different degrees of cultivation which his intellectual and moral powers receive in the different stages of society.[1]

The savage, having neither occasion nor inclination to exert his intellectual faculties, excepting to remove the present inconveniences of his situation, or to procure the objects which minister to his necessities, spends the greater part of his time in a state of stupid and thoughtless repose. It is impossible, therefore, that his features should acquire that spirit and that mobility which indicate an informed and an active mind. Supposing two individuals to possess originally the same physical form—to be cast, if I may use the expression, in the same

[1] For some ingenious and important remarks upon this subject, see an *Essay on the Causes of the Variety in the Complexion and Figure of the Human Species*, by the Reverend Samuel Stanhope Smith, D.D., Vice-President and Professor of Moral Philosophy in the College of New Jersey.

mould; and the one to be educated from infancy in the habits of savage life, while the other has been trained to the manners of cultivated society; I have no doubt but that, abstracting entirely from the influence of climate and of other physical circumstances, their countenances would, in time, exhibit a very striking contrast. Nothing, indeed, can place this in a stronger light, than the rapid change which a few months' education produces on the physiognomy of those dumb children, to whom the ingenuity of the present age furnishes the means of mental culture—a change from listlessness, vacancy, and seeming fatuity, to the expressive and animated look of self-enjoyment and conscious intelligence. It is true that, in such a state of society as ours, a great proportion of the community are as incapable of reflection as savages; but the principle of imitation, which in some measure assimilates to each other all the members of the same group or circle, communicates the external aspect of intelligence and of refinement to those who are the least entitled to assume it: and it is thus we frequently see the most complete mental imbecility accompanied with what is called a *plausible or imposing appearance;* or, in other words, a countenance which has caught, from imitation, the expression of sagacity.

I have already said that, in the case of most persons, the power of imitation decays as the period of childhood draws to a close. To this cause it is probably owing that the strong resemblance which often renders twins scarcely distinguishable from each other in infancy, in most cases disappears gradually, in proportion as their countenances are rendered more expressive by the development of their respective characters. Like other powers, however, exercised by the infant mind, this faculty may be easily continued through the whole of life by a perseverance in the habits of our early years. By a course of systematical culture, it may even be strengthened to a degree far exceeding what is ever attained by the unassisted capacities of our natures. It is thus that the powers of the mimic are formed,—powers which almost all children have a disposition to indulge, and of which it is sometimes difficult to restrain the

exercise. The strength of the propensity seems to vary a good deal, according to the physical temperament of the individual; but wherever it meets with any encouragement, it is well known that no faculty whatever is more susceptible of improvement: and accordingly, when, at any time, the possession of it happens to be at all fashionable in the higher circles, it very soon ceases to be a rare accomplishment. In the other sex, the power of imitation is, I think, in general, greater than in ours.[1]

A frequent reiteration of any act, it has been often remarked, communicates to the mind, not only a *facility* in performing it, but an increased *proneness* or *disposition* to repeat it. This observation is remarkably verified in those who accustom themselves to the exercise of mimicry. Their propensity to imitation gains new strength from its habitual indulgence, and sometimes becomes so powerful as to be hardly subject to the control of the will. Instances of this have, more than once, fallen under my own observation; and, in a few well authenticated cases, the propensity is said to have become so irresistible, as to constitute a species of disease. A very memorable fact of this kind is recorded by a Mr. George Garden, (who seems to have been a medical practitioner in Aberdeenshire,) in one of the early volumes of the *Philosophical Transactions*.[2]

[1] "Tout en elles est plus expressif; des fibres plus délicates, une physionomie plus mobile, un accent plus flexible, un maintien plus naïf; tout parle plus clairement à nos regards; tout porte mieux l'empreinte de leurs caractères, de leurs affections, et de leurs pensées; leur âme enfin semble moins invisible; et par ce qu'elles paroissent, on juge mieux de ce qu'elles sont."—*Discours de M. de Boufflers, lors de sa réception à l'Académie Française.*

[2] See *Philosophical Transactions*, vol. xii., for an extract of a letter from Aberdeen, 1676-7, *concerning a man of a strange imitating nature*. It may suffice here to transcribe the most interesting particulars.

"This Donald Monro (for that is his name) being a little, old, and very plain man, of a thin slender body, hath been subject to this infirmity, as he told us, from his very infancy. He is very loath to have it observed, and, therefore, casts down his eyes as he walks in the streets, and turns them aside when he is in company. We had made several trials before he perceived our design; and we afterwards had much ado to make him stay. We caressed him as much as we could, and had then the opportunity to observe, that he imitated not only the scratching of the head, but also the wringing of the hands, wiping of the nose, stretching forth of the arms, &c. And we needed not strain compliment to persuade him to be covered; for he still put off and on as he saw us do, and

As we have a faculty of imitating the peculiarities of our acquaintances, so we are able to fashion, in some degree, our own exterior, according to the ideal forms which imagination creates. The same powers of embellishing nature, which are exercised by the poet and the painter, may, in this manner, be rendered subservient to the personal improvement of the individual. By a careful study of the best models which the circle of his acquaintance presents to him, an outline may be conceived of their common excellencies, excluding every peculiarity of feature which might designate the particular objects of his imitation; and this imaginary original he may strive to copy and to realize in himself. It is by a process analogous to this, (as Sir Joshua Reynolds has very ingeniously shown,) that the masters in painting rise to eminence; and such, too, is the process which Quintilian recommends to the young orator, who aspires to the graces of elocution and of action: "Imitate," says he, "the best speakers you can find: but imitate only the perfections they possess in common."[1]

It is remarked by the same admirable critic, that although a disposition to imitate be, in young men, one of the most favourable symptoms of future success, yet little is to be expected from those who, in order to raise a laugh, delight in mimicking the peculiarities of individuals.[2] An exclusive

all this with so much exactness, and yet with such a natural and unaffected air, that we could not so much as suspect he did it on design. When we held both his hands, and caused another to make such motions, he pressed to get free; but when we would have known more particularly how he found himself affected, he could only give this simple answer, *that it vexed his heart and his brain.*

"I shall leave to your consideration what peculiar *Crasis* of spirits, or distemper of imagination, may cause these effects, and what analogy they bear to the involuntary motion of yawning after others, and laughing when men are tickled, (which some will do, if anybody do make that titillating motion with their fingers, though it be at a distance from them,) and whether, if his nurse have accustomed him to the frequent imitation of little motions and gestures in his infancy, this may not have had some influence to mould the texture of his brain and spirits, and to dispose him to this ridiculous apishness."

[1] "Habet omnis eloquentia aliquid commune. Id imitemur quod commune est."—Quint. *Inst.* lib. 10, cap. iii.

[2] "Non dabit mihi spem bonæ indolis, qui hoc imitandi studio petit, ut rideatur."—Ibid. lib. i. cap. iii.

attention, indeed, to the best models which human life supplies, indicates some defect in those powers of imagination and taste, which might have supplied the student with an ideal pattern still more faultless; and, therefore, how great soever his powers of execution may be, they can never produce any thing but a copy (and probably a very inferior copy) of the original he has in view.[1]

These observations may throw some light on the distinction between the powers of the Mimic and of the Actor. The former attaches himself to individual imitation; the latter,

[1] To prevent any of my readers from extending too far Quintilian's remark, I beg leave to remind them, that he is here speaking of the education of an Orator, to whom, I agree with him in thinking, that the practice of mimicking particular public speakers is most dangerous and pernicious. I have never, at least, known any person much addicted to it, who retained a manner of his own, natural, decided, and characteristical. As to that higher and rarer species of mimicry, the object of which is to exhibit a living portrait of some distinguished individual, the case is different. It often indicates powers of accurate and delicate observation, to the expression of which language is altogether inadequate, and which justly entitles the possessor to the praise of genius; and when accompanied (as it is not always) with good nature, with taste, and with a wish to amuse, it claims no inconsiderable rank among those harmless contributions which are brought by the young and the gay to the stock of social pleasure. That some men of the greatest and most splendid abilities have been fond of indulging this talent is certain. The late illustrious M. D'Alembert (as I have been assured by some of his most intimate friends) delighted to enliven those parties where he was perfectly at ease, by exhibiting his extraordinary powers as a mimic. That which he possessed for imitating voices is said to have been more particularly wonderful. Madame Du Deffand, with her characteristic want of heart, mentions this trifling accomplishment of that great and amiable philosopher as the only circumstance which made her regret the loss of his society after her quarrel with Mademoiselle de l'Espinasse. "J'aime à la folie à voir bien contrefaire; c'est un talent qu'a D'Alembert, et qui fait que je le regrette."—*Letters of the Marquise Du Deffand to the Honourable Horace Walpole*, vol. i. p. 153.

The same talent is said to have been possessed by Machiavel, and also by Sir William Petty.—See *Diction. Historique*, Art. Machiavel, and Evelyn's *Memoirs*.

From the *Memoirs of the Count de Grammont*, it appears that this accomplishment was in great request at the Court of our Charles the Second; and was one of those which made the Duke of Buckingham so general a favourite. "Son talent particulier étoit d'attraper le ridicule et les discours des gens, et de les contrefaire en leur présence, sans qu'ils s'en apperçussent. Bref, il savoit faire toutes sortes de personnages avec tant de grace et d'agrément, qu'il étoit difficile de se passer de lui, quand il vouloit bien prendre la peine de plaire."

equally faithful to the study of nature, strives, in the course of a more extensive observation, to seize on the genuine expressions of passion and of character, stripped of the singularities with which they are always blended when exhibited to our senses.[1] It has been often remarked, that these powers are seldom united in the same person; and I believe the remark is just, when stated with proper limitations. It is certainly true, that a talent for mimicry may exist in the greatest perfection, where there is no talent for acting, because the former talent implies merely the power of execution, which is not necessarily connected either with taste or with imagination. On the other hand, where these indispensable qualities in a great actor are to be found, there will probably be little disposition to cultivate those habits of minute and vigilant attention to *singularities* on which mimicry depends. But the powers of the actor

[1] In a very affected and inflated *Essay on the Art of Acting*, by Aaron Hill, I find the following passage, which I am induced to quote, from the particular attention which the author appears to have given to the business of the stage; from the habits of intimacy in which he lived with Garrick, Mrs. Pritchard, and other eminent performers; and from the acute and discriminating criticisms, which some of his letters contain, on several of the principal actors of his time. Notwithstanding the absurdity of some of the author's expressions, I think I can perceive in the following remarks several glimpses of important truths.

"The first dramatic principle is the following:—

"To act a passion well, the actor never must attempt its imitation till his fancy has conceived so strong an image or idea of it, as to move the same impressive springs within his mind which form the passion, when 'tis undesigned and natural.

"This is an absolutely necessary, and the only general rule; and it is a rule wholly built on nature.

"1*st*, The imagination must conceive a strong idea of the passion.

"2*d*, *The idea cannot be strongly conceived, without impressing its own form upon the muscles of the face.*

"3*d*, Nor can the look be muscularly stamped, without communicating instantly the same impression to the muscles of the body," &c. &c. &c.

A similar notion seems to have been entertained by Mr. Mason, when he introduced the following couplet into his translation of Fresnoy:—

> "By tedious toil no passions are exprest,
> His hand who feels them strongest paints them best."

On these lines the translator observes, that "by feeling the passions strongest, he does not mean that a passionate man will make the best painter of the passions, but *he who has the clearest conception of them; that is, who* FEELS *their effect on the countenance of other men, as in great actors on the stage, and in persons in real life strongly agitated by them.*"

evidently presuppose and comprehend the powers of the mimic, if he had thought the cultivation of them worthy of his attention; for the same reason, that the genius of the historical painter might, if he had chosen, have succeeded in the humbler walk of painting portraits. If I am not much mistaken, this conclusion might be confirmed by an appeal to facts. Foote, it is well known, was but an indifferent actor; and many other mimics of acknowledged excellence in their own line have succeeded still worse than *he* did on the stage. But I have never known a good actor, who did not also possess enough of the power of mimicry to show, that it was his own fault he had not acquired it in still greater perfection. Garrick, I have been told by some of his acquaintance, frequently amused his friends with *portraits* of individual character, incomparably finer and more faithful than any that were ever executed by Foote.[1]

In what I have hitherto said concerning our propensity to imitation, more particularly in infancy, I have contented myself with a very general statement of the fact, without attempting to analyze with accuracy the manner in which the propensity operates. In one instance, I have expressed myself as if I conceived the determination to be literally involuntary. It is proper for me *now*, however, to observe, in order to prevent any misapprehension of my meaning, that the word *involuntary* is not here to be understood in its strict logical sense, but in that more vague and popular acceptation in which it is commonly employed. I have no doubt, that in every case of imitation whatever, an act of the will precedes the muscular exertion; in the same manner, as I believe, that an act of the will precedes the winking of the eye-lids, when an object is made to pass rapidly before the face. In both cases, the effect may probably be prevented by a contrary volition steadily exerted; but, in both cases, it takes place in so great a majority of in-

[1] With respect to Garrick's powers as a mimic, see his *Life* by Davies. His imitations of some of his own contemporaries on the stage, which he was accustomed to introduce in performing the part of Bayes, are said to have been as unrivalled in point of excellence, as any of his other theatrical exhibitions.

stances, as to show clearly, that there is a certain determination or proneness to the volition, originating in the general principles of our nature. It is the *proneness*, merely, that I am anxious at present to establish as a fact, without pushing the metaphysical analysis any farther; and when I employ on this occasion, the word *involuntary*, I use it in the same sense as when it is applied to those habitual acts, which, although they *may be* counteracted by the will, require for their counteraction, the exercise of cool reflection, accompanied with a persevering and unremitted purpose directed to a particular end.

This proneness to imitation, although (as was formerly observed) most conspicuous in childhood, continues, in all men, to manifest itself on particular occasions, through the whole of life; and, as far as I can judge, is the general law to which many of the phenomena, resolved by Mr. Smith into the principle of sympathy, ought chiefly to be referred. If, indeed, by *sympathy*, Mr. Smith had meant only to express a fact, I should have thought it a term not more exceptionable than the phrase *sympathetic imitation*, which I have adopted in this chapter. But it must be remembered, that, in Mr. Smith's writings, the word *sympathy* involves a theory or hypothesis peculiar to himself; for he tells us expressly, that where this principle is concerned, the effect is produced by an illusion of the imagination, leading us to suppose that we ourselves are placed in a situation similar to that of our neighbour. "When we see a stroke aimed, and just ready to fall upon the leg or arm of another person, we naturally shrink and draw back our own leg or our own arm; and when it does fall, we feel it in some measure, and are hurt by it as well as the sufferer. The mob, when they are gazing at a dancer on the slack-rope, naturally writhe, and twist, and balance their own bodies, as they see him do, and as they feel that they themselves must do, if in his situation. Persons of delicate fibres, and a weak constitution of body, complain, that, in looking on the sores and ulcers which are exposed by beggars in the streets, they are apt to feel an itching or uneasy sensation in the correspondent part of

their own bodies. The horror which they conceive at the misery of those wretches, affects that particular part in themselves, more than any other; because that horror arises from conceiving what they themselves would suffer, if they really were the wretches they are looking upon, and if that particular part in themselves was actually affected in the same miserable manner."

These facts are, indeed, extremely curious, and I do not pretend to explain them completely. One thing, however, I apprehend, may be asserted safely, that in none of the cases here mentioned, is the sympathy, which is manifested by the spectator, founded on an illusion of the imagination, leading him to conceive himself in the same situation with the party really interested. In the instance of the rope-dancer, the most pertinent of all of them to Mr. Smith's purpose, the sympathy which accompanies the movements of the performers is extremely analogous to what is exhibited on various other occasions, where this theory cannot be supposed to apply. A person, for example, who plays at bowls, and who is deeply interested in the game, while he follows his bowl with the eye, naturally accompanies its deflections from the rectilinear course, with correspondent motions of his body;[1] although it cannot

[1] "Mox, ubi funduntur latè agmina crebra minorem
Sparsa per Orbiculum, stipantque frequentia metam,
Atque negant faciles aditus; jam cautiùs exit,
Et leviter sese insinuat revolubile lignum.
At si fortè globum, qui misit, spectat inertem
Serpere, et impressum subitò languescere motum,
Ponè urget sphæræ vestigia, et anxius instat,
Objurgatque moras, currentique imminet orbi.
Atque ut segnis honos dextræ servetur, iniquam
Incusat terram, ac surgentem in marmore nodum.
"Nec risus tacuere, globus cùm volvitur actus
Infami jactu, aut nimium vestigia plumbum
Allicit, et sphæram à recto trahit insita virtus.
Tum qui projecit strepitus effundit inanes,
Et, variam in speciem distorto corpore, falsos
Increpat errores, et dat convicia ligno.
Sphæra sed irarum temnens ludibria, cœptum
Pergit iter, nullisque movetur surda querelis."
Sphæristerium, (The Bowling-Green,) Auctore Jos. Addison.

well be imagined, that, in doing so, he conceives himself to be projected from his own hand, and rolling along the ground like the object about which his thoughts are so strongly engrossed. Such, however, is his anxious solicitude about the event, that he cannot restrain his body from following, in its movements, the direction of his wishes; nor can he help fancying, while the event is yet in suspense, that it is in his power to forward it by a verbal expression of his wish, or even by a mental expression of his will. Hence it is, that when the bowl takes a wrong bias, he is apt to address it, as if it could listen to, or obey his voice;—his body, in the meantime, *not*, as before, accompanying the motion of the bowl, but eagerly bending to the opposite side of the mark.[1] The sympathetic movements of the spectator, in the case of the rope-dancer, seem to me to be strikingly analogous to this; due allowance being made for the more lively interest we take in the *critical* fate of a fellow-creature, than in the *fortunate* issue of a trifling game of skill; although, I frankly acknowledge, at the same time, that, in neither the one instance nor the other, am I able to account for the phenomena completely to my own satisfaction. Something, I think, must unquestionably be referred to the principle of *sympathetic imitation*;—at least, in the case of the rope-dancer, so long as the movements of the spectator correspond with what he sees;—and, even when he strives, as frequently happens, to correct, by a contrary effort, a false movement of the performer, the effect may, perhaps, be still resolved into the same principle, the event *conceived and wished for* then impressing the mind more forcibly than what is actually presented to the senses; and, of conse-

[1] We seem, in this case, to have a momentary belief that the bowl is animated; similar to what we experience when a paroxysm of rage leads us to wreck our vengeance on a stick or a stone, or anything else confessedly insentient. In both instances, the animal or instinctive principles of our nature acquiring a momentary ascendency over the rational, we relapse for a time into the habitual conceptions of our infant years. A dog, in like manner, while he sees the bowl rolling along the ground, seldom fails to pursue it with eagerness, as if it were his natural prey, barking or howling till he overtakes it, and then attempting to seize it with his mouth and with his feet. [V. Lucretium.—*Ed.*]

quence, the imitation being directed, not to a *real*, but to an *ideal* object.

Before concluding these general remarks on our propensity to imitation, it may be worth while to add, that it is not confined exclusively to the rational nature. The imitative powers of several sorts of birds are sufficiently evinced by the astonishing command they display over those muscles of the throat on which the voice depends; and the variety of forms in which the same powers appear in the tribe of monkeys, is surpassed only by the exhibitions of the human mimic.

I have mentioned this last fact, because much stress has been laid on it by those writers who are anxious to refer all the intellectual superiority acquired by man over the brutes, to the peculiarities of his bodily organization. To such writers, the combination which exists, in the monkey, of a resemblance to the human structure, and of that propensity to imitation which is so intimately connected with our intellectual improvement, could not fail to appear a very plausible presumption in favour of their theory. But on a closer attention to the fact, this very tribe of animals, which has been so often quoted, in order to mortify the pride of our species, furnishes the strongest of all arguments in proof of an essential distinction between our nature and theirs; inasmuch as they show, that neither an approach to the human figure, nor yet the use of the hand, nor yet the faculty of imitation, (which are all of such inestimable value when under the direction of a superior intellect,) can confer on them one solid advantage, or even raise them to a level with the more sagacious of the quadrupeds.

SECTION II.—OF THE POWER OF IMITATION.

The observations hitherto made on the principle of Sympathetic Imitation relate chiefly to our *propensity* or *proneness* to imitate; a circumstance in human nature which has been remarked and illustrated by different writers, both ancient and modern. The *power* by which the imitation is, in certain

cases, accomplished, although a subject not less interesting than the corresponding *propensity*, has not yet, as far as I know, attracted the notice of any philosopher whatever.

It was before observed, that the powers of imitation displayed, in so extraordinary a degree by the mimic, seem to be only a continuation of capacities possessed by all men in the first years of their existence; but which, in most individuals, are in a great measure lost from disuse soon after the period of infancy. The consideration, therefore, of some circumstances connected with this peculiar talent, may perhaps throw light on the general or common principles of the human frame.

When a mimic attempts to copy the countenance of a person whom he never saw before, what are the means which he employs in order to effectuate his purpose? Shall we suppose that his efforts are merely tentative and experimental; or, in other words, that he tries successively every possible modification of his features, till he finds, at last, by the information of a mirror, that he has succeeded in the imitation of the original? Nobody can for a moment believe this to be the case, who has attended in the slightest degree to the subject. On the contrary, it is a fact universally known, that the imitation is often perfectly successful in the very first trial; and that it is not from a mirror, but from his own internal consciousness, that the mimic judges of its correctness. I acknowledge, at the same time, that the fact is sometimes otherwise, and that instances occur, in which the best mimics are found to make many successive efforts before they accomplish their end; or in which, after all their efforts, the attempt proves ultimately abortive. But it will not be disputed that the former statement holds in general, where the propensity to mimicry is strong; and even where exceptions take place, there is commonly, from the first, such an approximation to the resemblance aimed at, as sufficiently demonstrates, that, how much soever experience may be useful in finishing the portrait, the most important part of the process must be referred to causes of a different description.

The fact seems to be perfectly similar with respect to the

imitation of sounds. A good mimic is able, the first time he hears another person speak, to exhibit, on the spot, an exact copy or *fac-simile* of what he has heard, with all the peculiarities of tone and accent which accompany it; and even when he fails in the attempt, he commonly approaches very nearly to the original which he copies. A child of a good ear, and a flexible voice, catches almost instantaneously any simple air which he hears; or, at least, succeeds after a very few trials. The *approximation*, in such cases, it is of great importance to remark, is a thing not less wonderful than if the copy were perfect, and proves not less forcibly, that, in those imitative efforts, we are not guided by experience alone.

I am disposed to lay peculiar stress on this last consideration, because superficial inquirers, *in their zeal to explain away the phenomena commonly ascribed to* INSTINCT, have, of late, been strangely led to conclude, that wherever experience can be shown to have *any* share in directing our actions, it is idle to have recourse to the operation of any other cause. In this way, it is a very easy matter to establish their doctrine, because, in general, Nature has done nothing more, either for man, or for the lower animals, than was absolutely necessary for enabling them to turn their experience to account, seldom giving a perfectly precise determination to their efforts, but invariably performing for both, the essential office which Lord Bacon would have called the *Abscissio Infiniti*;[1] and confining their experiments within such narrow limits as are suited to their respective capacities. Thus the lamb, although the moment after it is dropped it is guided by nature (probably through the medium of the sense of smelling) to the neighbourhood of that organ where its nourishment is to be found, rarely, if ever, fixes, till after repeated trials, on one of the teats. An ear for music, in our own species, is unquestionably, in a very great measure, the gift of nature; yet, where such a capacity exists, how wonderfully may it be improved by culture! Something analogous to this seems to take place in the act of bodily imita-

[1] An expression which Bacon applies to some of the expedients in the art of *Technical Memory*.

tion, nature directing our efforts *near* the mark, and leaving the task of hitting it with precision to our own industry. In such cases, the most interesting problem for the examination of the philosopher, is *not*, whether experience does not contribute *something* to render the operations of instinct effectual, (a point about which, in general, there can be little doubt,) but whether experience is of itself sufficient to explain the *whole* difficulty,—a question upon which I am inclined to think, that they who have considered the subject the most deeply will be the slowest to pronounce a decided opinion in the affirmative. The prosecution of this hint would lead me to the consideration of a most important distinction among our instincts, according as they are *pure* or *mixed*; but this argument more properly belongs to another part of my general design.

Nor is there any thing in the instinctive process, which I suppose to take place in this instance, more astonishing than what we experience in every voluntary motion of the body. I *will* to move my arm, and the requisite machinery is instantly arranged and put in action for the purpose. All that I think of is a particular *end*. The *means* by which it is accomplished are neither combined by my reason, nor are they subjected to my scrutiny. The mimic, in like manner, when he attempts to imitate the countenance of another, conceives strongly in his mind the portrait he wishes to exhibit. He thinks only of the *end*; and a few efforts to accomplish it conduct him, by a process which philosophy cannot explain, to the effect which he aims at. In the latter of these instances, the effect, from being more complicated, and from the comparative rarity of the talent on which it depends, may at first strike us with greater surprise; but that it is, in reality, an effect of the same kind with those which every voluntary movement of our limbs presents to our notice, will appear on a very slight comparison of the two phenomena.

As in all our common voluntary exertions we have only to *will* the end, and the *means* are arranged without our co-operation, I conclude, that in mimicry the mimic forms a lively *conception* of the features he wishes to copy; and, by repeated

efforts, succeeds in producing the desired effect. The case is similar when he imitates voices. He remembers and conceives strongly what he wishes to imitate, and the muscles necessary for that purpose are, as in other cases, put into action in obedience to his will. The same thing happens when a singer, who has a correct ear, catches a musical air, after hearing it once played or sung by another person.

It appears from a great variety of facts, that we lose by disuse the command of many muscles which were apparently meant to be subservient to voluntary motion. Different travellers have taken notice of the extraordinary power which savages have in moving their toes. I myself remember to have seen, more than twenty years ago, an Anglo-American girl who was exhibited in Edinburgh, and who supplied, in a great measure, the want of the *hand* by means of the *foot*. I recollect, in particular, to have seen her cut watch-papers, of a great variety of patterns, with a pair of scissors,—an operation which she executed with great neatness, and with astonishing rapidity. It may be worth while to add, that in order to preserve entire the sensibility and the pliability of her foot, (which approached very nearly to those of the hand in other individuals,) she had been obliged to give up almost entirely the practice of walking. This might be owing partly to her anxious care of the white leather gloves she wore on her feet, about the cleanness of which she seemed to be finically nice.

Everybody must, in the circle of *their* acquaintance, have met with individuals who had the power, by an act of the will, to put their thumbs out of joint. I knew intimately a gentleman who had acquired this knack, and who used frequently to display it unconsciously when engaged in any argument. He told me that it was possessed by every boy who had been bred at the same school with him; and that it was the common practice, as soon as their master's eye was fixed on his book, for the head boy of the class to give the signal, when all his school-fellows held up their thumbs, and were ready, upon a second signal, to execute this manœuvre.

The inference I draw from these facts is this:—That, in the

case of the mimic, many of the muscles of the countenance, which in other men are immovable, have acquired from exercise a certain degree of mobility, so that when the mimic wishes to assume a particular look, he has only to will the end, and his wish is immediately accomplished.

It is not, however, always that the mimic succeeds at first. Some who are still living must remember to have heard the late Lord Cullen (the most perfect of all mimics) mention the difficulty he experienced in seizing the features of Lord Kames, when, after many fruitless efforts, he succeeded all at once, in the course of a tour with a friend in the Highlands of Scotland. The moment he had acquired the command of the hitherto dormant set of muscles on which the effect depended, he knew, *by consciousness*, that he had hit the resemblance; and he appealed to his companion in the carriage for the fidelity of the portrait. It certainly became, in process of time, one of the most accurate of all his imitations.[1]

With this power of imitation, our interpretation of natural signs, *so far as it is the result of an instinct for which experience alone will not account*, seems to me to have an intimate connexion. The following very slight hints will be sufficient to show that this idea is not altogether groundless.[2]

That our interpretation of natural signs is, in no case, the result of *pure* or *unmixed instinct*, is abundantly obvious. Indeed, I do not know of any philosopher who has been so hardy as to maintain explicitly the contrary opinion; who has asserted, (for example,) that the natural signs of *Rage*, in the countenance of another person, would convey an idea of that passion to a man who had never experienced its workings within his own

[1] I think it proper to add, in justice to Lord Cullen, (a person certainly of great learning and accomplishments,) that he had given up entirely the exercise of mimicry (even in the company of his most intimate friends) many years before he was promoted to the bench. Sometimes, indeed, in telling a story, he would forget himself for a moment, and unconsciously betray those marvellous powers which he seemed anxious to conceal. I recollect, in particular, that long after the death of Mr. Adam Smith, I have been startled more than once, by hearing the very tones of his voice, accompanied by all the peculiarities of his look and manner.

[2] See p. 8, *seq.* of this volume.

breast.[1] The real problem with respect to this very interesting part of the human constitution is, in truth, of a very different nature from what most theorists seem of late to have supposed; and the solution of it (if I do not greatly deceive myself) lies deeper in the Philosophy of the Mind, than they are willing to allow.

Among those who contend, that experience alone furnishes a sufficient explanation of the phenomenon in question, two different suppositions may be formed with respect to the manner in which it operates; and to these suppositions I cannot even in imagination add a third. In the first place, it may be conceived, that an infant, having learned *in its own case*, that a smile is the natural effect or sign of a happy and affectionate state of mind, is induced by the *principle of association*, when it sees a smile on the countenance of its nurse, to ascribe it to emotions similar to those which it has itself experienced. Or, secondly, it may be thought, that, having uniformly observed the smiles of its nurse to be a prelude to the agreeable sensations it is accustomed to receive through the medium of her kindness, it comes, in process of time, to interpret their

[1] Dr. Reid has been frequently charged with maintaining this doctrine; and it must be owned, that the enumeration he has made of the different kinds of natural signs afforded too plausible a ground to a captious adversary for drawing this inference with respect to his real opinion.—See his *Inquiry into the Human Mind*, chap. v. sect. 3. Of this I have been long fully aware. The following sentences I copy *verbatim* from an *Essay on the Object of Natural Philosophy*, which I read before the Royal Society of Edinburgh more than forty years ago.—See the History of the Society prefixed to the first volume of their *Transactions*.

"I suspect that there is foundation for a farther subdivision of natural signs than is made by the learned and ingenious Dr. Reid in his *Inquiry*. In the case of the perception of hardness, our sensation not only suggests to us the external quality, but it is in this way we first get the idea of it. The case seems to be different with respect to the natural expressions of passion. They are interpreted, indeed, instinctively; but our first ideas of the passions are probably derived from our own consciousness. I cannot persuade myself that the natural signs of rage would convey an idea of that passion to a man who had never felt it. . . . No modification of countenance could convey the idea of *rage* to a man who had never been conscious of that passion; but, after having acquired the idea of this passion from his own consciousness, he is able instinctively to interpret its natural expression."

meaning, and to anticipate her tenderness, in the same manner in which it learns by experience, at a more advanced period of life, to interpret the meaning of conventional language.

With respect to the first of these theories, it seems sufficient to observe, that, in order to bestow upon it even the shadow of plausibility, it must be supposed farther, that the infant has the aid of a mirror, to enable it to know the *existence* of its own smiles, and what sort of *appearance* these smiles exhibit to the eye. That the particular modification of features connected with this expression is itself accompanied with an agreeable bodily sensation, I think highly probable; but this throws no light whatever on the present difficulty, till it is farther explained by what process the child learns to identify what it *feels*, or is *conscious of*, in its own countenance, with what it *sees* on the countenance of another.

It is to the other hypothesis, however, that Dr. Priestley plainly leans, as may be inferred from the following very explicit statement given by himself. "I do not hesitate to say, that if it were possible always to beat and terrify a child with a placid countenance, so as never to assume that appearance but in these circumstances, and always to soothe him with what we call an angry countenance, this natural connexion of ideas would be reversed, and we should see the child frighted with a smile, and delighted with a frown."[1]

As this view of the subject places the interpretation of *Natural* and *Conventional* signs exactly on the same footing, it obviously suggests to us the two following queries, as preliminary subjects of consideration. Till these queries are answered in a satisfactory manner, Dr. Priestley's solution of the difficulty is of no value whatsoever; and yet, he has not even alluded to either, in the course of his argument. 1*st*, Whence is it, that we interpret *natural* signs so much earlier than *conventional* signs? And, 2*d*, To what cause is it owing, that their *effects* are so widely different on the human frame? It is scarcely necessary for me to mention, as an additional objection, that this theory overlooks altogether that *physico-*

[1] Priestley's *Examination of Reid*, &c., p. 91.

moral sympathy which, through the medium of the body, harmonizes different minds with each other; and which, as it is one of the most important, so it is one of the most incontestable facts connected with the theory of our common nature.

How far the hints which I am now to offer may go towards an explanation of these phenomena, I do not pretend to judge.

As every emotion of the mind produces a sensible effect on the bodily appearance, so, upon the other hand, when we assume any strongly expressive look, and accompany it with appropriate gestures, some degree of the correspondent emotion is apt to arise within us. Mr. Burke informs us, that he has often been conscious of the passion of anger rising in his breast, in consequence of his counterfeiting its external signs; and I have little doubt, that, with most individuals, the result of a similar experiment will be the same. Campanella, too, the celebrated philosopher and physiognomist, (as Mr. Burke farther observes,) when he wished to form a judgment of what was passing in the mind of another, is said to have mimicked, as accurately as possible, his appearance at the moment, and then to have directed his attention to the state of his own feelings.[1] In general, I believe it will be found, that these two

[1] The following passage contains the whole of Mr. Burke's observations on this very curious subject.

"It appears very clearly to me, from many examples, that when the body is disposed, by any means whatsoever, to such emotions as it would acquire by the means of a certain passion, it will itself excite something very like that passion in the mind."

"To this purpose, Mr. Spon, in his *Recherches d'Antiquité*, gives us a curious story of the celebrated physiognomist Campanella. This man, it seems, had not only made very accurate observations on human faces, but was very expert in mimicking such as were any way remarkable. When he had a mind to penetrate into the inclinations of those he had to deal with, he composed his face, his gesture, and his whole body, as nearly as he could, into the exact similitude of the person he intended to examine; and then carefully observed what turn of mind he seemed to acquire by this change. So that, says my author, he was able to enter into the dispositions and thoughts of people, as effectually as if he had been changed into the very men. I have often observed, that, on mimicking the looks and gestures of angry, or placid, or frightened, or daring men, I have involuntarily found my mind turned to that passion whose appearance I endeavoured to imitate; nay, I am convinced it is hard to avoid it, though one strove to separate the passion from its corre-

talents of mimicry and of physiognomy, have a very close connexion. They are said to be united, to a great degree, in the savages of North America; and the same remark has been repeated by some of our late navigators, with respect to the rude islanders of the South Sea.[1]

In farther illustration of the same principles, a well-known fact obviously presents itself as entitled to particular notice,—that there is often connected with a turn for mimicry, a power of throwing one's self into the habitual train of another person's thinking and feeling, so as to be able, on a supposed or imaginary occasion, to support, in some measure, his *character*, and to utter his language. A remarkable instance of this kind

sponding gestures. Our minds and bodies are so closely and intimately connected, that one is incapable of pain or pleasure without the other. Campanella, of whom we have been speaking, could so abstract his attention from any sufferings of his body, that he was able to endure the rack itself without much pain; and in lesser pains, everybody must have observed, that when we can employ our attention on any thing else, the pain has been for a time suspended. On the other hand, if by any means the body is indisposed to perform such gestures, or to be stimulated into such emotions as any passion usually produces in it, that passion itself never can arise, though its cause should be never so strongly in action; though it should be merely mental, and immediately affecting none of the senses. As an opiate or spirituous liquors shall suspend the operation of grief, or fear, or anger, in spite of all our efforts to the contrary, and this by inducing in the body a disposition contrary to that which it receives from these passions." —*On the Sublime and Beautiful*, part iv. sect. 4.

For some farther particulars with respect to Campanella, see Note A.

[1] It has been often observed, that the propensity to *imitation in general* is peculiarly strong in the earlier stages of society, and that it seems to be a natural consequence of the low state of the inventive faculties. This general propensity, directed habitually (among its various objects) to that species of imitation which depends on the body, seems to account sufficiently for the continuance, through life, among savage and barbarous nations, of those mimic and versatile powers of face and gesture, which, in cultivated minds, are commonly confined to the period of childhood. In this respect, savages continue always to be "children of a larger growth."

It is in the earlier stages of society, besides, when government and laws are imperfectly established, and when, of consequence, the fulfilment of contracts depends chiefly on the sincerity and fidelity of the parties, that practical physiognomy, or, what is commonly called, *a good eye for character*, is most likely to be found.—If the remarks in the text have any foundation in fact, this circumstance deserves attention as an additional cause of the propensity and the talent which savages in general have for bodily imitation.

occurred in an English comedian who lived in the earlier part of the last century. The following account of him is given by a very accurate and acute observer, who knew him well. "Estcourt," says Colley Cibber, "was so amazing and extraordinary a mimic, that no man or woman, from the coquette to the privy counsellor, ever moved or spoke before him, but he could carry their voice, look, mien, and motion, instantly into another company. I have heard him make long harangues, and form various arguments, even in the manner of thinking of an eminent pleader at the bar, with every the least article and singularity of his utterance so perfectly imitated, that he was the very *alter ipse*, scarce to be distinguished from his original." The statement here given is probably somewhat exaggerated; but instances approaching more or less to the description, must have fallen in the way of every man who has mingled at all in general society.[1]

This class of facts opens a wide field of new and curious speculation; but on a topic which occurs so incidentally, I must not indulge myself in any discussions at present. A few slight remarks may, however, be useful in guarding some of my readers against certain conclusions, which the foregoing quotation is not unlikely to suggest to a hasty theorist. With this view, it is of importance to observe.

1*st*, That such imitations are confined almost entirely to the demeanour of individuals in the more trifling situations of common life; and of individuals who are distinguished by some marked and prominent peculiarities. Nobody can suppose that, by copying the looks of a Bacon, or of a Newton, a mimic would feel himself inspired with any portion of their philosophical sagacity.

[1] The account given by Cibber of Estcourt's talents as a mimic, is confirmed by Sir Richard Steele in one of the papers of the *Spectator*. "What was peculiarly excellent in this memorable companion was, that in the accounts he gave of persons and sentiments, he did not only hit the figure of their faces and manner of their gestures, but he would, in his narrations, *fall into their way of thinking:* and this, when he recounted passages wherein men of the best, as well as such wherein were represented men of the lowest rank in understanding."—*Spectator*, No. 468.

2*d*, The description quoted from Cibber is probably (as I already hinted) considerably overcharged. The faintest imitation of the characteristical style of a public speaker, either in point of thought or of diction, if accompanied, at the same time, with an imitation of his voice and manner, will seem, even to good judges, a much more faithful copy than it is in reality; for the same reason, that the effect of an indifferent portrait is so wonderfully heightened by a minute fidelity in copying the habitual singularities of dress which distinguish the original. In such cases, the spectator is seldom aware, while he estimates the powers either of the mimic or of the painter, how very large a share is contributed by his own fancy to fill up the outline which is exhibited to his senses.[1]

3*d*, A considerable part of the metamorphosis produced in the mind of the mimic, by his copying the look and manner of another, may be fairly ascribed to memory and the association of ideas. The power of *mental* imitation, wherever it exists, necessarily implies a singularly accurate eye in marking what I think may, without impropriety, be called the *dramatic effect* of human character and of human life;[2] and whatever pecu-

[1] See Appendix to this Chapter.

[2] "Estcourt," says Sir Richard Steele, in a paper quoted in a former note, "had so exquisite a discerning of what was defective in any object before him, that in an instant he could shew you the ridiculous side of what would pass for beautiful and just, even to men of no ill judgment, before he had pointed at the failure. This was easily to be observed in his inimitable way of telling a story. He was no less skilful in the knowledge of beauty."—*Spectator*, No. 468.

This nice discernment and discrimination of the individual peculiarities, and (if I may say so) of the most *significant points* in the looks and manner of other men, and the superior powers of observation and of taste which this discrimination implies, are, I believe, what give the principal charm to the very amusing talent now under our consideration. The imitative faculty of the mimic is valued chiefly as it enables him to give a language to a species of characteristical criticism too fine and evanescent for the grasp of verbal description. In this respect it is entitled to a high rank among the exertions of genius. As for the mere power of corporeal imitation, (the power of copying the voice, gestures, and gait of another,) it is often possessed in the greatest perfection by children, and even by persons approaching nearly to the condition of idiots. It is well described in the words which Virgil applies to the image of Æneas, with which Juno deceived Turnus:

——"dat inania verba,
Dat sine mente sonum, gressusque effingit euntis." *Æneid.* x. 639.

liarities of look or of phraseology remain most deeply impressed on the mimic's mind, will naturally awaken some associated circumstances of thought or of emotion, which they served to indicate at the moment when they first arrested the attention. But the effort of mimicry cannot fail, of itself, to present to the power of Conception, in the strongest and liveliest manner, the original which is copied; and therefore it is not surprising that, on such an occasion, the mimic should enter more completely into the ideas and feelings he wishes to seize,—to identify himself in imagination for the moment (if I may use the expression) with the archetype he has in view, than he could have done, without the same exciting causes operating on his fancy.[1]

Of the truth of this I am so fully convinced, that I have little doubt, when Foote was employed in composing his very lively and graphical dramas, that he assumed successively, in the solitude of the closet, the looks, voices, and manner (perhaps sometimes the ordinary dress) of the different persons whom he meant to exhibit on the stage. The lightness, and, at the same time, truth and spirit of many of the touches, bear, I think, evident marks of this sort of inspiration.

Still, however, it appears to me that the effect is, *in part*, owing to the physical connexion established between the mind, and the external expression of its operations. While we copy the looks and gestures of any public speaker, or of any prominent character in private society,—imitating, at the same time,

[1] Although a considerable part of the following passage (particularly the proposition with which it sets out) is to me quite unintelligible, I think it worth while to transcribe the whole. It affords a proof that the ingenious author had been struck with the same class of facts which have been now under our review, as presenting a curious and interesting field of examination to the physiologist and philosopher. "Quand on s'associe aux affections morales d'un homme, on répète au moins sommairement, les opérations intellectuelles qui leur ont donné naissance; on l'imite; aussi les personnes chez qui l'on reconnoit, au plus haut degré, le talent d'imitation, sont elles en même temps, celles que leur imagination met le plus promptement, le plus facilement, et le plus complètement, à la place des autres; ce sont elles qui tracent, avec le plus de force et de talent, ces peintures des passions, et même tous ces tableaux de la nature inerte, qui ne frappent et saisissent nos regards, qu'autant qu'une sorte de sympathie les a dictés."—Cabanis, *Rapport du Physique et du Morale de l'Homme*, tome ii. p. 431.

the peculiarities of his elocution; the hesitation or the fluency, the conciseness or the redundancy, of his diction; the looseness and carelessness of his phraseology, or the artificial rhythm of his periods; the state of our own faculties and feelings may be expected to be, in some measure, assimilated to his: and it is chiefly to the *general* influence of this cause upon an inventive fancy, that I am inclined to ascribe whatever similarity may appear in the intellectual processes. But on this point I would be understood to speak with the greatest diffidence.

One conclusion may, I think, be considered as sufficiently established by acknowledged facts, (whatever opinion may be adopted concerning the connexion between the bodily organization and the powers of the understanding,) that the state of a man's *temper*, when under the influence of any passion or emotion, might be judged of by a mimic who was able to assume exactly his appearance, and who was capable, at the same time, of attending accurately to his own feelings, while he was under this transformation. If this be granted with respect to the mimic, is it not probable that something of the same kind happens to every man, more or less, when he sees any passion strongly marked in the countenance of another; the irresistible tendency to imitation, which all men have in their earlier years, being still sufficiently powerful to excite some correspondent feeling in his mind, although it may not appear to the spectator to occasion any visible alteration in his countenance? Is it not farther probable, that it is by some process of this kind that the more simple and essential elements of the language of nature become so soon intelligible to infants; the *propensity* to sympathetic imitation being in their case so strong, and the *power* of imitation so perfect, as to render their bodies incomparably fitter *media* for carrying on the intercourse of different minds, (so far as that intercourse is necessary for the child's preservation,) than they can be supposed to be afterwards, when that pliableness and mobility of system, by which the principle of imitation operates, have given place to those artificial habits which insensibly mould the physical, as well as the moral frame of man, into one fixed and unchangeable form?

In what *manner* this intercourse is kept up, I do not pretend to be able to ascertain; but that the principle of Sympathetic Imitation forms one very important link in the mysterious chain, may, I apprehend, be safely inferred from the facts and observations which have been now stated. If it be true that the particular modifications of features connected with a smile and a frown, are accompanied, the one with an agreeable, the other with a disagreeable bodily sensation; and also, that the bare imitation of these external expressions has some tendency to produce the emotions of which they are respectively significant, it will follow, that when a child catches, by imitation and sympathy, the smile or the frown of its mother, the corresponding emotions will necessarily arise, in some degree, in its own breast; and will give a *pathetic effect* to these natural and visible signs of her tenderness or displeasure, for which the theories of Hartley and Priestley do not even attempt to account. *Incipe, parve puer,* RISU *cognoscere matrem.*[1] That this suggestion goes at once to the bottom of the difficulty, I am far from apprehending; but I am inclined to believe, that it will not be altogether useless to those who may undertake the task of subjecting this very curious and hitherto unexamined part of the human frame to an accurate analysis.

[1] [Virgil, *Ecl.* iv. 60.] It seems strange to me, that commentators should from the earliest times have been so much divided in opinion about the meaning of this passage; as, in point of poetical beauty, there can be no comparison between the two interpretations. It is still more strange, that Dryden should have given the preference to that which one would have thought his good taste would at once have rejected. But he had high authorities in his favour; and with all his transcendent merits as a poet, he seems to have had little relish for the tender and pathetic. His version is as follows:—

"Begin, auspicious boy, to cast about
Thy infant eyes, and, with a smile, thy mother single out."

The sequel of the passage, (which he has also mistranslated,) might have convinced him of his mistake.

"Incipe, parve puer: cui non risere parentes,
Non Deus hunc mensa, Dea nec dignata cubili est."

Which Dryden renders thus:

"Then smile; the frowning infant's doom is read,
No god shall crown the board, nor goddess bless the bed."

On this subject see Heyne's *Virgil.*

SECTION III.—OF CERTAIN PHENOMENA WHICH SEEM TO BE RESOLVABLE, IN PART, INTO THE FOREGOING PRINCIPLES.[1]

The contagious nature of convulsions, of hysteric disorders, of panics, and of all the different kinds of enthusiasm, is commonly referred by medical writers to the *principle of Imi-*

[1] In a general view which I have elsewhere given (see *Dissertation prefixed to the Supplement to the Encyclopædia Britannica*, Part I. [*supra*, *Works*, vol. i. p. 65, *seq.*]) of Lord Bacon's contributions to the *Philosophy of the Human Mind*, I have taken notice of the attention he had bestowed on that particular class of phenomena to which this Section relates. The reader will forgive me for transcribing the following paragraphs, as proofs of the prophetic sagacity with which he had anticipated the future course of philosophical inquiry in metaphysical as well as in physical science.

"In considering Imagination as connected with the nervous system, more particularly as connected with that species of sympathy to which medical writers have given the name of *Imitation*, Lord Bacon has suggested some very important hints, which none of his successors have hitherto prosecuted; and has, at the same time, left an example of cautious inquiry, worthy to be studied by all who may attempt to investigate the laws regulating the union between mind and body.

"To this branch of the Philosophy of Mind, Bacon gives the title of *Doctrina de fœdere, sive de communi vinculo animæ et corporis*, (*De Aug. Scient.* lib. iv. cap. 1.) Under this article he mentions, among other *desiderata*, an inquiry (which he recommends to physicians) concerning the influence of imagination over the body. His own words are very remarkable; more particularly the clause in which he remarks the effect of fixing and concentrating the attention, in giving to ideal objects the power of realities over the belief. 'Ad aliud quippiam, quod huc pertinet, parce admodum, nec pro rei subtilitate, vel utilitate, inquisitum est; quatenus scilicet *ipsa imaginatio animæ vel cogitatio perquam fixa, et veluti in fidem quandam exaltata, valeat ad immutandum corpus imaginantis*.'—(Ibid.) He suggests also, as a curious problem, to ascertain how far it is possible to fortify and exalt the imagination, and by what means this may most effectually be done. The class of facts here alluded to, are manifestly of the same description with those to which the attention of philosophers has been lately called by the pretensions of Mesmer and of Perkins. 'Atque huic conjuncta est disquisitio, quomodo imaginatio intendi et fortificari possit? Quippe, si imaginatio fortis tantarum sit virium, operæ pretium fuerit nosse, quibus modis eam exaltari, et se ipsa majorem fieri detur? Atque hic oblique, nec minus periculose se insinuat palliatio quædam et defensio maximæ partis *Magiæ Ceremonialis*.'" See what Lord Bacon has farther remarked concerning Magia Ceremonialis.—*De Aug. Scient.* lib. iv. cap. 3.

Various striking passages, with respect both to Imagination and Imitation, occur in Bacon's *Sylva Sylvarum*. One of his remarks upon the latter subject coincides so exactly with what I have observed in p. 121, that, if it had not

tation ; and it seems, indeed, to have a very intimate connexion with that part of our constitution. Among these various phenomena, however, there are some which depend also on a combination of very powerful causes of another description ;— on the influence, for example, of Imagination, and of those passions which are apt to be kindled wherever men are assembled in a crowd : And therefore, to refer them all to *imitation* alone, implies either an error in point of theory, or an unwarrantable latitude in the meaning annexed to that word. To draw the line, indeed, accurately, between the causes which, in these instances, conspire in producing the same effect, is not an easy task, nor do I mean, on the present occasion, to attempt such an analysis. It is sufficient for me to remark, in general, that although, in this chapter, I have adopted the common arrangement of physiologists, by introducing the following discussions under the title of *Imitation*, I would not be understood to overlook those other circumstances which may have their respective shares in producing the phenomena we are about to consider. For thus stopping short at facts, without a

escaped me at the time, I would not have failed to have quoted it there, at the end of the note. I shall, therefore, though somewhat out of place, transcribe it here: Nor shall I suppress the wild hypothesis to which this great man plainly had a leaning, which would resolve the phenomena of Imitation into a *transmission of spirits* from one person to another. The very extravagance of this theory renders it highly worthy of notice, as it proves, indirectly indeed, but with the force of demonstration, that Bacon was fully aware of (what no succeeding inquirer seems to me to have perceived) the great, or rather the insurmountable difficulty of the problem which he was anxious to resolve. Nothing else could have led him to avail himself, on such an occasion, of a *magical* transmission of spirits from body to body. "*It is a thing strange in nature, when it is attentively considered, how children and some birds learn to imitate speech. They take no mark at all of the motion of the mouth of him that speaketh; for birds are as well taught in the dark as by light.* The sounds of speech are very curious and exquisite; so one would think it were a lesson hard to learn. It is true that it is done with time, and by little and little, and with many essays and proffers; *but all this dischargeth not the wonder.* It would make a man think, (though this which we shall say may seem exceeding strange,) that there is some transmission of spirits; and that the spirits of the teacher put in motion, should work with the spirits of the learner a predisposition to offer to imitate, and so to perfect the imitation by degrees. But touching operations by *transmissions of spirits, (which is one of the highest secrets in nature,)* we shall speak in due place; chiefly when we come to inquire of Imagination."

more diligent investigation and separation of general laws, the only apology I shall offer is the practical applications of which *the facts themselves* are susceptible, abstracted from all consideration of the laws to which they ought ultimately to be referred; and my anxiety, on a subject of such peculiar importance, rather to add a little to the history of the Human Mind, than to indulge myself in speculations and conjectures of more questionable utility.[1]

To that class of facts of which I am now to treat, a valuable addition was made in the course of the philosophical inquiries which took their rise at Paris, in consequence of the cures pre-

[1] Dr. Gregory, in his philosophical and elegant work, entitled *Conspectus Medicinæ Theoreticæ*, while he adopts the common language of physiologists concerning Imitation, hints very explicitly, with his usual sagacity and caution, that the various classes of phenomena referred to this principle, have only *a certain degree of affinity*. The whole passage well deserves to be quoted.

"Porro, sola Imitatione multa facimus, multa discimus. Imitatur nondum conscius infans quicquid vel videt vel audit: et vir adultus, et suæ spontis, inscius vel forte invitus, tantum adhuc imitatur, ut hominum quibuscum versatur mores et sermonis prolationem, quamvis sæpe nolens, acquirat. Omnem sermonem infans imitando discit, aliter, ut quibusdam persuasum est philosophis, mutum et turpe pecus futurus.

"*Huic quodammodo affinis est*, altera illa, subita, et vehementior Imitatio, quæ, dementiæ instar, non singulos tantum homines, sed totos populos, nonnunquam rapuit. Hac tanquam contagione, varii animi affectus, tristes, læti, ridiculi, ab unius vultu per omnium pectora dimanant. Ardor pugnæ, et plus quam spes victoriæ, ab alacri ducis, cui confidunt milites, vultu, totam aciem dicto citius pervadit, et multa millia pectorum pariter accendit: iidem vero milites, victoria jam parta, unius vel ignoti hominis terrore perculsi, turpiter terga dederunt, nulla auctoritate, nulla vi coërcendi.

"Quin et fanaticorum quorundam furor, simili modo aliquando diffusus est: hominesque se sanos credentes, qui talem insaniam tempsissent et irrisissent, solo visu et auditu furentium ipsi dementiæ facti sunt participes.

"Par ratio est affectionum quarundam *nervosi generis;* oscitationis, *hysteriæ*, *epilepsiæ*, quæ solo visu mirum in modum sæpe propagantur."—*Consp. Med. Theoret.*, Sects. 345-348. Edin. 1782.

In Sir Gilbert Blane's medical writings, he has repeatedly touched upon the subject of Imitation. See in particular his *Dissertation on Muscular Motion.*—(*Select Dissertations on Several Subjects of Medical Science*, pp. 268-270.) See also his *Elements of Medical Logic*, 2d edit. p. 260.

Of the professional merits of these works I am not a competent judge; but without being accused of an undue partiality to one of my oldest and most valued friends, I may be allowed to say, that I know of no medical publications where the practical discussions of the healing art are more agreeably and instructively blended with the lights of sound philosophy.

tended to be effected by means of Animal Magnetism. The following quotation from the *Report* of the Commissioners employed by Louis Sixteenth to examine the pretensions of Mesmer and his disciples, contains some of the most interesting conclusions from these inquiries; and, although it involves too many theoretical expressions, it will convey a sufficiently distinct idea of the nature of the subject, to the illustration of which this section is allotted.[1]

After observing how inconsiderable the effects were which isolated patients exhibited, in consequence of all the attempts made to operate on their imagination, the commissioners proceed to remark, that, even in the public process, the *crises* do not commence in less than the space of two hours. "By little and little," I quote at present their own words, "the impressions are communicated from one to another, and *reinforced* in the same manner as the impressions which are made by theatrical representations,—where the impressions are greater in proportion to the number of the spectators, and the liberty they enjoy of expressing their sensations. The applause by which the emotions of individuals are announced, occasions a general emotion, which every one partakes in the degree in which he is susceptible. The same observation has been made in armies upon a day of battle, where the enthusiasm of courage, as well as the impressions of terror, are propagated with so amazing rapidity. The drum, the sound of the military musical instruments, the noise of the cannon, the musquetry, the shouts of the army, and the general disorder, impress the organs, and exalt the imagination in the same degree. In this *equilibrium of inebriation*, the external manifestation of a single sensation immediately becomes universal;

[1] This *Report* is known to have been drawn up by the illustrious and unfortunate Bailly; and, notwithstanding its great merits, is somewhat infected with that predilection for figurative language which is characteristical of his style, and which was particularly unsuited to his present subject. A few of the most exceptionable of these expressions I shall distinguish in the paragraphs which I am to quote, by printing them in Italics. I have availed myself of the English translation published by Johnson, St. Paul's Church-yard, 1785, to which is prefixed a valuable Historical Introduction.

it hurries the soldiery to the charge, or it determines them to fly. In a numerous assembly, individuals are more subjected, than on other occasions, to their senses and their imagination; and less capable of consulting and obeying the dictates of reason. Hence the origin of that religious frenzy, which formerly affected so powerfully both the minds and the bodies of the enthusiasts of the *Cevennes;* and hence the acts of insanity into which public bodies are apt to be hurried, in times of political revolution. On this principle, it has been usual to forbid numerous assemblies in seditious towns, as a means of stopping a contagion so easily communicated. Everywhere, example acts upon the moral part of our frame; MECHANICAL IMITATION upon the physical. The minds of individuals are calmed by dispersing them; and, by the same means, spasmodic affections, which are always infectious in their nature, may often be removed. Of this a recent example occurred in the young ladies of St. Roch, who were thus cured of the convulsions with which they were afflicted while assembled together.[1]

"The magnetism, then," the commissioners continue, "or, rather, the operations of the imagination, are equally discoverable at the theatre, in the camp, and in all numerous assemblies, as at the bucket; acting, indeed, by different means, but

[1] "On the day of the ceremony of the first communion, celebrated in the parish church of St. Roch, a few years ago, (1780,) after the evening service they made, according to custom, the procession through the streets. Scarcely were the children returned to the church, and had resumed their seats, before a young girl fell ill and had convulsions. This affection propagated itself with so much rapidity, that, in the space of half an hour, fifty or sixty girls, from twelve to nineteen years of age, were seized with the same convulsions; that is, with a contraction of the throat, an inflation of the stomach, suffocation, hiccups and spasms, more or less considerable. These accidents reappeared in some instances in the course of the week; but the following Sunday, being assembled with the dames of St. Anne, whose business it is to teach the young ladies, twelve of them were seized with the same convulsions, and more would have followed, if they had not had the precaution to send away each child upon the spot to her relations. The whole were obliged to be divided into several schools. By thus separating the children, and not keeping them together but in small numbers, three weeks sufficed to dissipate entirely this epidemical convulsive affection."—[A pendant to this is Boerhaave's case of the girls of Haarlem.—*Ed.*]

producing similar effects. The bucket is surrounded with a crowd of patients; the sensations are continually communicated and recommunicated; *the nerves are at last worn out with this exercise*, and the woman of most sensibility in the company gives the signal. In the meantime, the men who are witnesses of these emotions partake of them in proportion to their nervous sensibility; and those, with whom this sensibility is greatest, and most easily excited, become themselves the subjects of a crisis.

"This irritable disposition, partly natural and partly acquired, becomes in each sex habitual. The sensations having been felt once or oftener, nothing is now necessary but to recall the memory of them, and to exalt the imagination to the same degree, in order to operate the same effects. The public process is no longer necessary. You have only to conduct the finger and the rod of iron before the countenance, and to repeat the accustomed ceremonies. In many cases, the experiment succeeds, even when the patient is blindfolded, and, without any actual exhibition of the signs, is made to believe that they are repeated as formerly. The ideas are re-excited; the sensations are reproduced; while the imagination, *employing its accustomed instruments, and resuming its former routes*, gives birth to the same phenomena."

A very interesting and authentic collection of facts, tending to illustrate still farther this article in the natural history of man, has since been published by the late Dr. Haygarth, in his *Essay on the Imagination, as a cause and as a cure of the disorders of the body; exemplified by fictitious tractors and epidemical convulsions.*[1]

Leaving, however, to medical theorists the consideration of such cases as fall peculiarly within the circle of their professional pursuits, I shall confine myself chiefly to phenomena of more frequent recurrence, and more accessible to common observation. I would beg leave, at the same time, to recom-

[1] Bath: printed by R. Crutwell, 1800. Some curious facts and observations of the same kind, may be found in Dr. Whytt's *Treatise on the Nature, Causes, and Cure of Nervous Disorders*, Edinburgh, 1765. See pp. 215-220.

mend warmly to my successors in this branch of study, a careful examination and comparison of the details connected, both with the use of tractors, and with the practice of animal magnetism,—as inestimable *data* for extending our knowledge of the laws which regulate the connexion between the human mind, and our bodily organization. The lights, more particularly, which they throw on various questions relative to the imagination, are such, as must for ever entitle Mesmer and Perkins to the gratitude of those who cultivate the Philosophy of the Mind; whatever the motives may have been which suggested the experiments of these practitioners, or whatever the occasional mischiefs of which they may have been the authors.

In the extract already quoted from the Report of the Commissioners, a reference is made to the infectious tendency of religious enthusiasm; a tendency which they seem very justly to ascribe, in a great measure, to the violent bodily agitations which it is apt to produce, and the rapidity with which such agitations are propagated among a crowd.[1] As an example of this, they mention the enthusiasts of the *Cevennes*, commonly known by the name of *Camisards*. Some other instances of the same kind which occurred in Scotland, at the time of Mr. Whitefield's first visit to this country, are stated upon unquestionable authority, in the Statistical Account of the Parish of Cambuslang.[2] The particulars, however, which I am now to quote, form, if possible, a still more authentic document on the subject, as they rest on the testimony of a writer, well qualified by his abilities to describe with accuracy whatever fell under his observation; and whose peculiar religious tenets exempt him from any suspicion of having mingled on this occasion any ludicrous exaggerations with the facts which he records. The writer I allude to is Mr. Barclay, the well-known author of the *Apology for the Quakers*, who thus endeavours to point out the salutary consequences to be expected, in a religious point

[1] Some excellent observations on this subject are made by Lord Shaftesbury, in his *Letter concerning Enthusiasm*; also in various parts of his *Miscellaneous Reflections*.

[2] *Statistical Account of Scotland*, vol. v.

of view, from their *meetings*, even when all verbal intercourse is suspended.

"Such is the evident certainty of that divine strength that is communicated by thus meeting together, and waiting in silence upon God, that sometimes when one hath come in, that hath been unwatchful and wandering in his mind, this power, being in a good measure raised in the whole meeting, will suddenly lay hold upon his spirit, and wonderfully help to raise up the good in him; begetting in him a sense of the same power, to the melting and warming of his heart, even as the warmth would take hold of a man that is cold, coming near a stove, or as a flame will lay hold of some little combustible matter lying near it. Yea, sometimes when there is not a word in the meeting, but all are silently waiting,—if one comes in that is rude and wicked, and in whom the power of darkness prevaileth much,—if the whole meeting be gathered into the life, it will strike terror into such a one, and he will feel himself unable to resist. Sometimes the power of God will break forth into a whole meeting, and there will be such an inward travail, while each is seeking to overcome the evil in themselves, that by the strong working of these opposite powers, (the evil and the good,) like the going of two contrary tides, every individual will be strongly exercised as in a day of battle, and thereby trembling and a motion of body will be upon most if not upon all. And from this the name of Quakers or Tremblers was first reproachfully cast upon us; which, though it be none of our choosing, yet in this respect we are not ashamed of it, but have rather reason to rejoice, even that we are sensible of this power that hath oftentimes laid hold on our adversaries, and made them yield to us, and join with us, and confess to the truth, *before they had any distinct or decisive knowledge of our doctrines; so that sometimes many at one meeting have been thus convinced; and this power would sometimes also reach to, and wonderfully work, even in little children, to the admiration and astonishment of many.*"

Facts of this kind, when so completely authenticated, not only form a curious accession to the history of our species, but

furnish matter of important reflection to the philosophical statesman; and, indeed, to all those who have occasion to manage the passions of assembled multitudes. Before, however, I proceed to the consideration of the practical inferences which they suggest, it may be useful to state a few miscellaneous conclusions arising from the foregoing induction; together with some incidental remarks tending to illustrate a little more fully one or two points which have been touched on more slightly than their importance deserved.

1*st*, Among these conclusions, one of the most interesting is, the contagious nature of certain bodily affections, even when unaccompanied with any mental passion or emotion. This appears from the rapidity with which convulsive and hysterical disorders are propagated among a crowd. It is of importance, however, to recollect, (although, perhaps, to some the caution may appear superfluous and trifling,) that this contagion is not, like that of a fever, the immediate consequence of unconscious vicinity, or even of contact. It operates, somehow or other, through the medium of the *mind;* inasmuch as it necessarily implies a knowledge or perception (received either by the eye or by the ear) of the agitated condition of the person from whom the affection is caught. This perception, it would seem, when the symptoms of the disorder are such as to impress the mind deeply, has a tendency of itself to bring the body of the *percipient* into a condition similar to that of his neighbour; more especially when, from an irritability of system, any predisposition to such spasmodic affections exists. To whatever principle this may be referred, and by whatever name, whether of *imitation* or of *sympathy*, we may choose to distinguish it, the general fact is sufficiently ascertained by observation and experience; and it seems to be perfectly analogous to some of those which have been already treated of in the foregoing sections of this chapter. From the Report of the French Commissioners, and, indeed, from facts which are familiar to every one, it appears farther, that although *the ear* is not without its share in contributing occasionally to such effects, yet *the eye* (which has been justly called the Prime Minister of

the Imagination) is, in most instances, by far the principal agent or instrument concerned.

It is a question worthy of more attention than has yet been bestowed upon it by physicians, whether certain kinds of insanity have not a contagious tendency, somewhat analogous to that which has just been remarked. That the incoherent ravings and frantic gestures of a madman have a singularly painful effect in unsettling and deranging the thoughts of others, I have more than once experienced in myself; nor have I ever looked upon this most afflicting of all spectacles, without a strong impression of the danger to which I should be exposed, if I were to witness it daily. In consequence of this impression, I have always read, with peculiar admiration, the scene in the Tragedy of Lear, which forms the transition from the old king's beautiful and pathetic reflections on the storm, to the violent madness in which, without any change whatever in his external circumstances, he is immediately after represented. In order to make this transition more gradual, the poet introduces Edgar, who, with a view of concealing himself from Lear, assumes the dress and behaviour of a madman. At every sentence he utters, the mind of the king, "*whose wits*" (as we are told in the preceding scene) were "*beginning to turn*," becomes more and more deranged, till at length every vestige of reason vanishes completely.

2*d*, As bodily affections seem to be, in certain cases, contagious, where they are altogether unaccompanied by any mental passion or emotion, so, on the other hand, the passions and emotions felt, or supposed to be felt by one individual, have a tendency to spread among his companions, even without the intervention of any external expression manifested in the appearance. This effect will be acknowledged by every man of sensibility, when a person who has lately received any signal instance either of good or of bad fortune, enters a numerous assembly; and it is sufficiently accounted for, by our natural disposition to sympathize with the feelings of those with whom we associate. Where a number of men, however, are collected upon any occasion of common concern, and on which the feel-

ings of all may be expected to be in unison,—on any occasion, for instance, of public festivity or of public mourning,—the impression produced in each will be greatly augmented; and it is accordingly apt, in such cases, to vent itself in tears, either of joy or of sorrow, even among characters whom the event in question would, in their solitary hours, have scarcely affected with any emotion whatsoever.

The devotional feelings are, in like manner, roused and exalted merely by the presence of others met together in the same place of worship; and *that* independently of any external rite, and often when all around are composed and silent.

3*d*, When the two former suppositions are combined,—that is, when the feelings of a crowd are in unison, or conceived to be in unison, from the operation of some common cause, and when, at the same time, these feelings begin, in a few individuals, to manifest themselves by strong bodily agitations, the effect is likely to be incalculably great; the mind at once acting on the body, and the body re-acting on the mind, while the influence of each is manifested by the inexplicable contagion of sympathetic imitation.

4*th*, Independently, however, of these considerations, there is something in the sight of a great multitude, more favourable to the excitement of the imagination and of the passions, than to the cool exercise of our reasoning powers. Every person who has been accustomed to address a large audience, must have experienced this in himself; and, accordingly, in popular assemblies, when a speaker indulges in declamation, or attempts to rouse the passions of his hearers, his eyes may generally be observed to sweep from place to place over his auditory; sometimes, perhaps, in a moment of more than common animation, to comprehend the whole at a glance: but, when he is about to *reason* or to detail facts, he strives to concentrate his thoughts by forgetting the crowd, and fixing the eye of a single individual. His hearers, in the meantime, (at least such of them as have not learned from early and long habit to maintain their self-possession and command of mind in circumstances so peculiarly adverse to reflection,) become almost passive materials in

his hands, and are prepared to follow wherever he leads the way:—So just is the maxim of Cardinal de Retz, that "*all great assemblies are mere mob,* and swayed in their deliberations by the most trifling motives." In the history of human nature, few facts are more curious or more important than this; that where immense numbers of men are collected on the same spot, and their physical force is the most irresistible, their minds are the most easily subdued by the authority of (what they conceive to be) the voice of wisdom and of virtue. The consciousness of this power—one of the proudest, unquestionably, which a man can possess over his fellow-creatures—contributes, more than any thing else, to animate and inspire that eloquence which it supposes; and hence, the foundation of a maxim laid down by Cicero, that "*eloquence is impossible, without a listening crowd.*"[1]

On such occasions, the contagion of sympathetic imitation will be found to aid so very powerfully the ascendency of the speaker's genius, as almost to justify the exclusive stress which Demosthenes laid on *action*,[2] when compared with the other constituents of the oratorical art. Buffon seems to have been fully aware of the same thing, when he introduced the following description of the effects of *popular* eloquence, into the discourse which he pronounced on his reception into the French Academy. The description appears to me to be just, and to be executed with a masterly hand; but I quote it at present, chiefly to have an opportunity of expressing my *dissent* from the conclusion which it is employed to illustrate.[3] "True elo-

[1] Fit autem, ut, quia maxima quasi oratori scena videatur concio, natura ipsa ad ornatius dicendi genus excitetur. Habet enim multitudo vim quandam talem, ut quemadmodum tibicen sine tibiis canere, *sic orator, sine multitudine audiente, eloquens esse non possit.* —*De Oratore*, lib. ii. cap. lxxxiii. See also the treatise entitled *Brutus, sive De Claris Oratoribus*, c. li. Nec enim posset idem Demosthenes dicere, &c. &c.

[2] What idea was annexed by the ancients to the word *Action*, we learn from the following passage of Cicero, *De Oratore*, lib. i. cap. v. "Quid ego de *actione* ipsa plura dicam, quæ motu corporis, quæ gestu, quæ vultu, quæ vocis conformatione ac varietate moderanda est? Quæ sola per se ipsa quanta sit, histrionum levis ars et scena declarant."

[3] "La véritable éloquence suppose l'exercice du génie et la culture de l'esprit. Elle est bien différente de cette facilité naturelle de parler, qui

quence implies an exertion of genius, and supposes a cultivated mind. It differs essentially from that fluency of speech, which is a talent possessed by all who have strong passions, flexible organs, and lively imaginations. Such men feel acutely, and express strongly, both by words and gestures, what they feel. Hence, by a sort of mechanical impression, they impart to others their enthusiasm and their affections;—*it is the body which speaks to the body;* all its movements, and all its expressive powers lending their aid. How little is sufficient to shake the opinions of most men, and to communicate to them the sentiments of the speaker! A tone of voice vehement and pathetic; gestures expressive and frequent; words rapid and sonorous."[1]

Buffon proceeds afterwards to contrast this popular eloquence with that which was cultivated in the French Academy, giving the decided preference to the latter, and, indeed, treating the former with every expression of contempt.[2] The proper inference, however, from his premises was, that if these secondary attainments of an orator can perform so much, where there is a real deficiency in more essential endowments, what effects might they not produce, if united with the higher gifts of the

n'est qu'un talent, une qualité accordée à tous ceux dont les passions sont fortes, les organes souples, et l'imagination prompte. Ces hommes sentent vivement, s'affectent de même, le marquent fortement au dehors, et par une impression purement mécanique, ils transmettent aux autres leur enthousiasme et leurs affections. *C'est le corps qui parle au corps;* tous les mouvemens, tous les signes concourent et servent également. Que faut-il pour émouvoir la multitude et l'entraîner? Que faut-il pour ébranler la plupart des autres hommes et les persuader? Un ton véhément et pathétique, des gestes expressifs et fréquens, des paroles rapides et sonnantes."—*Discours de M. de Buffon lors de sa réception à l'Académie Françoise.*

[1] To the same purpose Seneca. "Quidam ad magnificas voces excitantur, et transeunt in affectum dicentium, alacres vultu et animo; nec aliter concitantur quam Phrygii solent tibicinis sono semiviri et ex imperio furentes."—*Epistolæ*, ep. 108.

[2] "Mais pour le petit nombre de ceux dont la tête est ferme, le goût délicat, et le sens exquis, et qui comme vous, Messieurs, comptent pour peu le ton, les gestes et le vain son des mots; il faut des choses, des pensées, des raisons, il faut savoir les présenter, les nuancer, les ordonner; il ne suffit pas de frapper l'oreille et d'occuper les yeux, il faut agir sur l'âme et toucher le cœur en parlant à l'esprit."—*Discours de M. de Buffon lors de sa réception à l'Académie Françoise.*

understanding! Why undervalue an art, merely because it is adapted to the principles of our physical as well as of our moral frame; an art which, in ancient times, was cultivated by men not more distinguished by the splendour of their military virtues, than by those accomplishments which adorn and humanize the mind; and who, to a skill in composition which it is our pride to imitate at a distance, seem to have added all the energy and all the grace which pronunciation and gesture, regulated by taste and philosophy, could supply? The eloquence of the French Academicians, when considered in relation to its professed objects, justly claims our admiration; but why contrast it with *that* eloquence—to which it bears no resemblance but in name—which, in free states, has so often fixed the destiny of nations, and which the contagious sympathy of popular and patriotic emotions could alone have inspired? The compositions of Buffon himself, the most finished models, perhaps, of that polished and courtly style which he valued so highly,—what *are* they, when compared with those mightier powers of genius which

> Fulmin'd over Greece
> To Macedon and Artaxerxes' Throne?

What *are* they, even when compared with *that* eloquence, (tempered and subdued as it is by modern institutions and manners,) of which our own age and our own country has furnished so many illustrious examples; and which, in political assemblies far more wisely and happily constituted than those of the Athenian commonwealth, secures to its possessors an authority which no other distinctions can command? Such an ascendant is to be acquired only by talents as various as the principles of that nature on which they are destined to operate; and whoever, in the cultivation of the same art, forgets how closely the physical frame of man is linked with his imagination and his passions, may abandon all ambition of that empire over the minds of others to which the orators of antiquity aspired, and must rest satisfied with the praise of refinement, ingenuity, and wit.

Not many years after Buffon's death, the ascendant which

Mirabeau acquired, and for a short time maintained, in the Constituent Assembly of France,—"wielding at will that fierce Démocraty,"—afforded a splendid example of the influence of that species of eloquence which, in the judgment of Buffon, is so inferior to that of the French Academicians. And if the rare endowments of this extraordinary man had been united with a less revolting physiognomy, and with an unblemished private and public character, it is difficult to say, had his life been prolonged, what permanent benefits he might not have conferred on his country. He would have been able, in all probability, to prevent many of the atrocities to which the Revolution gave birth, and might, perhaps, have had the glory of bequeathing to France the blessings of a Monarchy limited by Constitutional Laws.[1]

SECTION IV.—OF THE ADVANTAGES RESULTING FROM THIS CONSTITUTION OF HUMAN NATURE.

Whoever reflects, with due attention, on the very remarkable class of phenomena which form the subject of the preceding sections of this chapter, and compares them with the general analogy of our constitution, can scarcely fail to be impressed with a strong conviction, that the principles upon which they depend are subservient, *on the whole*, to beneficent and important purposes; and that the occasional inconveniences which may arise from them, are more the consequences of some fault in education perverting them from their proper ends, than the necessary effects of those laws which nature has established. In confirmation of this pleasing idea, I shall here throw out a few hints and queries, which, although calculated rather to excite

[1] It may be proper here to remind the reader, that, in thus controverting the opinion of Buffon, I speak of eloquence merely as a display of the powers of the Human Mind. How far, in the present state of society, and in such a political establishment as ours, it is expedient to open, in a legislative body, such a field to this accomplishment, as to render its influence necessarily paramount to that of still more important attainments, is a question on which I do not presume to offer an opinion.

than to satisfy curiosity, may perhaps suggest to my readers some conclusions susceptible of a useful application in practice.

I have already taken notice of Imitation, as an important principle to be attended to in the education of children; and have remarked, in particular, with what facility they are led, by means of it, to acquire the use of speech. Of its efficacy, in *this* instance, we have obvious and irresistible proofs, in the extreme difficulty of teaching those to articulate who, in consequence of the want of hearing, have grown up to maturity without the use of oral language; and in the impossibility which even they who hear frequently experience, of uttering sounds borrowed from a tongue to which they have not been accustomed in early life.

How many are the other accomplishments which children might acquire insensibly in a similar way, merely from the habitual sight of good models, and which might thus be rendered to them a *second nature*, instead of consuming their time afterwards as *arts* which are to be systematically studied! Of this kind, manifestly, is everything connected with *grace*, both in utterance and in gesture; attainments which become altogether impossible, when their place has once been occupied by perverse habits caught from the contagion of early example, and too deeply rooted in the frame to be eradicated afterwards by any speculative conviction of the ridicule attending them.

It was also observed, that from the principle of imitation arises a general similarity in external appearance and in external manners, among all who are in the daily practice of associating with each other, as members of the same family, or of the same community. Husbands and wives have been supposed to acquire, in this manner, a certain similarity even in features and expression; nor do I think this idea altogether unfounded. In proportion as the habits of intimacy become looser, the resemblance may be expected to be less and less striking; but nothing can be more certain than this, that in the largest nation which has ever yet been united together, for a course of ages, by the same language, religion, and laws, there arises a resemblance in point of aspect, air, and carriage, which, however overlooked

by those to whom they are familiar, catches, in an instant, the eye of every foreigner.

Is it not probable, that this similarity of external appearance has some reciprocal effect on the mind, tending, so far as it goes, to facilitate the operation of the principle of sympathetic imitation, and to strengthen the moral ties by which fellow-citizens are united? Is it not owing, *in part*, to this, that we enter so much more easily into the feelings, temper, and character of one of our own countrymen, than into those of a foreigner, how perfectly soever we may be acquainted with the language which he speaks?

Might not an argument in favour of public education be deduced from these considerations? It was well said by a distinguished character of antiquity, [Agesilaus,] when he was asked what things he had made his children be taught?—"Those things," he replied, "which they may be able to turn to use when they become men."[1]

Applying the maxim to such of the rising generation as are destined for the active duties of society, what accomplishments (we may ask) can be put in competition with that early discipline which is to train them to the interpretation of human nature; to a quick perception of the temper and feelings of their associates, and to an artless and unstudied sympathy with these in the ordinary scenes of familiar intercourse; qualities which are much more nearly allied than is commonly suspected, to firmness and decision of character in the more serious concerns of human life. It is of no moment for us to inquire how far, in communicating these qualities, education operates upon the mind, and how far upon the body. My own opinion is, that it operates very powerfully upon both; and that one of its most efficacious instruments is that principle of *Assimilation*, or of Sympathetic Imitation, which led me at present to introduce the subject. Whatever opinion we may adopt on this theoretical point, the practical lesson is the same, provided it be granted, on the one hand, that the attainments I have men-

[1] Ταῦτ', οἷς καὶ ἄνδρες γενόμενοι χρήσονται.—Plutarch, *Apophthegmata Laconica*. [*Opera*, tom. ii. p. 213, edit. Xyl.]

tioned really possess the value which I have ascribed to them; and, on the other, that it is by very early culture only, that they are to be acquired in full perfection.

Nor is it in this respect alone that the principle of imitation affords an argument for public education. As the imitation of any *expression*, strongly marked in the countenance and gestures of another person, has a tendency to excite, in some degree, the corresponding passion in our own minds, so, on the contrary, the suppression of the external sign has a tendency to compose the passion which it indicates. It is said of Socrates, that whenever he felt the passion of anger beginning to rise, he became instantly silent; and I have no doubt that by observing this rule, he not only avoided many an occasion of giving offence to others, but actually killed many of the seeds of those malignant affections which are the great bane of human happiness. Something of the same kind, though proceeding from a less worthy motive, we may see daily exemplified in the case of those men who are fretful and unhappy in their own families, while, in the company of strangers, they are good-humoured and cheerful. At home, they give vent to all their passions without restraint, and exasperate their original irritability by the reaction of that bodily agitation which it occasions. In promiscuous society, the restraints of ceremony rendering this impossible, they find themselves obliged studiously to conceal whatever emotions of dissatisfaction they may feel; and soon come to experience in reality, that gentle and accommodating disposition of which they have been striving to counterfeit the semblance.

The application of these remarks to Education is so obvious, that I shall not enlarge upon it. By what means, but by the society of their fellows, is it possible for youth to acquire that command over the external expressions of their capricious humours, which is to furnish them, in future life, with one of the most powerful restraints that reason can call to its assistance in mastering and subduing the passions?

The following observations of Lord Bacon evidently bear upon the same argument. "If the force of custom, simple and

separate, be great, the force of custom, copulate and conjoined and *collegiate*, is far greater. For there example teacheth, company comforteth, emulation quickeneth, glory raiseth; so as in such places the force of custom is in its exaltation. Certainly the great multiplication of virtues upon human nature resteth upon societies well ordained and disciplined."[1]

In suggesting these hints in favour of public education, as more conformable to the general laws of human nature than private, I would not be understood to plead the cause of our existing seminaries. Of some radical faults in these establishments, I have been fully persuaded, ever since I was able to bestow a thought on the subject. But, surely, when we consider the state of Europe in those times which gave them birth, and the very limited, not to say *erroneous* views of their founders, it cannot be deemed a presumptuous partiality to our own age, to suppose it possible so to new model them, as to obviate their defects, without impairing their advantages.

The same train of thinking which gave rise to the foregoing reflections, has sometimes led me to suspect, that many of those national peculiarities of manners and character which are commonly ascribed to the physical influence of climate, are the physical effects of the principle of imitation, assimilating, more or less, the bodily frame of every individual to that which prevails in the circle of his associates. A person, although totally ignorant of the French language, could scarcely see a company of Frenchmen together, without catching somewhat of their disposition to briskness and vivacity. He would unintentionally, and probably unconsciously, display a propensity to copy in his own movements the most expressive peculiarities in theirs; and in doing so, would experience a state of spirits very different from what is inspired by the sight of a Dutch coffee-house. It is scarcely possible, while we carry on a conversation in the French tongue, to avoid altogether the gestures with which we have been accustomed to see it associated, when spoken by the natives of France; and it is still more difficult to mimic the looks and gait which are characteristical of that country, with-

[1] Bacon's *Essays*.—Of Custom and Education.

out experiencing for the moment a little of the national character. Admitting that the alertness of these looks, and the elasticity of that gait, were, in the first instance, the effect of moral circumstances operating on the public *mind*, it is not the less certain that these, in their turn, must by their reaction, confirm the influence of the causes by which they were produced.

"The Gascons," says Hume, "are the liveliest people in France; but the moment you cross the Pyrenees, you are among Spaniards." Hence Mr. Hume concludes, that a change so sudden must be the effect of moral, *not* of physical causes. The inference I believe to be just, according to the sense in which he employs these phrases; but still it may be questioned whether moral causes, where they operate constantly, and for a length of time, may not themselves produce physical effects on our frame, which physical effects may eventually become causes of as general efficacy, as those which are commonly supposed to be connected with the climate. Even on the mind of an Englishman who has been at all accustomed to attend to the state of his own feelings, as soon as he passes from France into Spain, or from Spain into France, and becomes a little *naturalized* in the new country to which he removes, the contagious influence of national character is sufficiently perceptible, to enable him to judge of the truth of these observations from his own experience.

Among all the phenomena, however, to which the subject of Imitation has led our attention, none are perhaps so wonderful as those which have been recently brought to light, in consequence of the philosophical inquiries occasioned by the medical pretensions of *Mesmer* and his associates. That these pretensions involved much of ignorance, or of imposture, or of both, in their authors, has, I think, been fully demonstrated in the very able report of the French Academicians; but does it follow from this, that the *facts* witnessed and authenticated by these Academicians should share in the disgrace incurred by the empirics who disguised or misrepresented them? For my own part, it appears to me, that the general conclusions established by Mesmer's practice, with respect to the physical effects

of the principle of Imitation and of the faculty of Imagination, (more particularly in cases where they co-operate together,) are incomparably more curious, than if he had actually succeeded in ascertaining the existence of his boasted fluid: Nor can I see any good reason why a physician, who admits the efficacy of the *moral* agents employed by Mesmer, should, in the exercise of his profession, scruple to copy whatever processes are necessary for subjecting them to his command, any more than he would hesitate about employing a new *physical* agent, such as electricity or galvanism. The arguments to the contrary, alleged by the Commissioners, only show, that the influence of imagination and of imitation is susceptible of a great abuse in ignorant or in wicked hands;—and may not the same thing be said of all the most valuable remedies we possess? Nay, are not the mischievous consequences which have actually been occasioned by the pretenders to animal magnetism, the strongest of all encouragements to attempt such an examination of the principles upon which the effects really depend, as may give to scientific practitioners the management of agents so peculiarly efficacious and overbearing? Is not this mode of reasoning perfectly analogous to that upon which medical inquirers are accustomed to proceed, when they discover any new substance possessed of *poisonous* qualities? Is not this considered as a strong presumption, at least, that it is capable of being converted into a vigorous remedy, if its appropriate and specific disorder could only be traced; and has it not often happened, that the prosecution of this idea has multiplied the resources of the healing art?

The well-imagined and satisfactory experiments upon *Tractors*, published by that eminent physician the late Dr. Haygarth, lead manifestly to the same conclusion; and, while they expose the futility of the theoretical views connected with the supposed virtues of these *material* instruments, evince the medical importance of the *intellectual* principles, which they point out as the real causes of the phenomena in question.[1]

[1] Upon this head, the Commissioners make a just and most important distinction.—"It remains for us to inquire, whether the crises or convulsions, ex-

But it is with the *moral* efficacy of Imitation and Imagination that we are chiefly concerned in this chapter; and, in this respect, some of the facts which were mentioned as analogous to the effects ascribed to animal magnetism, open a wide field to those who delight in the investigation of *uses* and *advantages;* or what is commonly, but less properly, called *final causes.* The extraordinary facility with which numerous assemblies yield to the authority of superior eloquence, and the dangers to which they are thereby exposed from the ambition or the enthusiasm of demagogues, have been already remarked. That this disposition, however, in human nature, notwithstanding its occasional inconveniences, is, on the whole, favourable to social order and happiness, can scarcely be disputed; as its obvious tendency is, to give to the intellectual endowments of man an ascendant over the physical force of a congregated multitude. Were it not for this, the deliberations of a numerous assembly, absurd and extravagant as they often are, would be incomparably more fatal in their consequences;

cited by the methods of the pretended magnetism in the assemblies round the bucket, be capable of any utility, or be calculated to cure or relieve the patients. The imagination of sick persons has unquestionably a very frequent and considerable share in the cure of their diseases. With the effect of it we are unacquainted otherwise than by general experience; but, though it has not been traced in positive experiments, it should seem not to admit of a reasonable doubt. It is a known adage, that in physic, as well as religion, *men are saved by faith;* but this faith is the produce of the imagination. In these cases the imagination acts by gentle means. It is by diffusing tranquillity over the senses, by restoring the harmony of the functions, by recalling into play every principle of the frame, under the genial influence of Hope. Hope is an essential constituent of human life; the man that yields us one, contributes to restore to us the other. But when the imagination produces convulsions, the means it employs are violent; and such means are almost always destructive. There are, indeed, a few rare cases in which they may be useful; there are desperate diseases, in which it is necessary to overturn every thing for the introduction of an order totally new. These critical shocks are to be employed in the medical art in the same manner as poisons. It is requisite that necessity should demand, and economy employ them. The need of them is momentary; the shock ought to be single. Very far from repeating it, the intelligent physician exerts himself to invent the means of repairing the indispensable evil which has thus been produced; but, in the public process of the magnetism, the crises are repeated every day, they are long and violent. Now, since the state introduced by these crises is pernicious, the habit cannot be other than fatal."

and could scarcely, in any supposable case, terminate in a decision which united so many suffrages as to bestow on it an adequate degree of executive energy. In the earlier periods of society, the utility of this constitution of things may, in many cases, have been incalculably great; animating the mass of an ignorant and savage tribe with the soul of a Minos or Lycurgus, and realizing in its effects, what ancient Mythology has fabled of the harps of Orpheus and Amphion.

Intimately connected with these facts, are the phenomena of religious enthusiasm, exemplified in the meetings of the *Camisards*, and of the Quakers. Do these phenomena (such, for example, as Barclay has so well described in his *Apology*) suggest no practical lessons on the subject of public and popular instruction? If they prove the possibility of leading, with an irresistible force, the hearts and the understandings of men, in opposition to the calm dictates of reason and experience, why should we doubt the efficacy of the same causes, were reason and experience, instead of being combated by imagination and imitation, to be strengthened by the aid of such powerful auxiliaries, disciplined to the task by taste and philosophy.

That this idea is not altogether chimerical, may be farther inferred from the electrical rapidity with which the enthusiasm of *moral* sentiment and emotion may be excited and propagated in a crowd. In proof of this, it is unnecessary to appeal to congregations met together for the purpose of religious instruction and social worship; and to the almost miraculous impressions produced by those preachers, who, in their appeals to the passions, know how to touch the strings of the human frame. The very same thing is exemplified, wherever numbers of men are collected into one place, and harmonized by the pursuit of one common object;—even although that object should be mere amusement or relaxation from serious thought. *Homo sum, humani nihil a me alienum puto;*—the effect which these words, uttered by an old man in a play, [the *Self-tormentor* of Terence,] produced on a Roman audience, is well known;*

* [The only ancient authority, as far as I know, who has left us a record of this effect, is St. Augustin; and his evidence, which lurks in an obscure

and although the anecdote has been quoted by way of contrast to the moral insensibility of English assemblies,[1] I am perfectly persuaded, that the effect would not have been less in any British or French theatre. Lord Shaftesbury remarks, that "the play of Shakespeare, which appears to have most affected English hearts, and has, perhaps, been oftenest acted of any which have come upon our stage," (I presume he means the Tragedy of Hamlet,[2]) "is almost one continued moral." The same author observes, that "it is necessary for the poet to borrow so much from the philosopher, as to be master of the common topics of morality. He must at least be speciously honest, and, in all appearance, a friend to virtue throughout the piece. The good and wise will abate him nothing in this kind; and the people, though corrupt, are, in the main, best satisfied with such a conduct." Nothing, indeed, can possibly place this in so strong a light as the extreme popularity which some dramatic performances have

corner of his works, has been generally overlooked, escaping even the diligence of the annotators upon Terence. It is as follows:—"Heic, et ille Comicus, (sicut luculentis ingeniis non desit resplendentia veritatis,) cum ab uno sene alteri seni dictum componeret:—'*Tantumne ab re tua est otii tibi, aliena ut cures ea, quæ nihil ad te adtinent?*'—responsum ab altero reddidit:—'*Homo sum, humani nihil a me alienum puto.*' Cui sententiæ, ferunt, etiam theatra tota, plena stultis indoctisque, applausisse. Ita quippe omnium affectum naturaliter adtigit societas humanorum animorum, ut nullus ibi hominum, nisi cujuslibet hominis proximum se esse sentiret."—*Epistola ad Macedonium*, sect. 14. (Ep., vulgo 51; edit. Benedict. 154, tom. ii. p. 541.) A very eloquent and philosophical application of the occurrence is made by Le Père André, in the Second Discourse of his *Essai sur le Beau*. But he likewise is at fault in his reference. From him, it may be added, it appears that his friend Gresset, borrowed, literally "*le Cri de la Nature*," indeed, though less obtrusively, the better part of the whole passage to be immediately quoted.—*Ed.*]

[1] By Sir Richard Steele in the *Spectator*, No. 502.

[2] I am confirmed in this conjecture by the following passage in the *Dramatic Miscellanies* of Mr. Davies, published in 1785:—

"The first play of Shakespeare, acted after the restoration, at the Duke of York's Theatre, if we may depend on the narrative of Downs, was Hamlet; the principal character was acted by Betterton, who often exhibited himself in this part, at the opening of the theatre, as an infallible lure to draw company. Wilks, at Drury Lane, and Ryan at Lincolns-Inn-Fields, frequently chose this favourite part to open the Winter Season at these rival playhouses. From the first representation of Hamlet, to the present day, we may reasonably conclude, that no dramatic piece whatever has laid hold of the public affection so strongly, and been acted so frequently."—Vol. iii. p. 4.

derived from this single circumstance, under every disadvantage of fable and of style, which could offend the taste or the judgment.

"Interdum speciosa locis, morataque recte
Fabula, nullius veneris, sine pondere et arte,
Valdius oblectat populum meliusque moratur
Quam versus inopes rerum, nugæque canoræ."
[HORACE, *Ars Poetica*, 319.]

If I live to publish my papers on the *Active Powers of Man*, I shall avail myself of the same class of facts, in opposing some of the prevailing theories of the present age, concerning the moral constitution of Human Nature. In the meantime it is sufficient to remark in passing, as a consequence of what has been already advanced, that the effect of the crowd is by no means to *create* the emotion which is exhibited, or even to alter its character: It only enables us to perceive its operation *on a greater scale*. In such cases, we have surely no time for reflection; and, indeed, the emotions of which we are conscious are such as no speculations about our own interest could possibly excite. It is in situations of this kind that we most completely forget ourselves as individuals, and feel the most sensibly the existence of those moral ties, by which Heaven has been pleased to bind mankind together.

"Tout le monde est méchant! oui, ces cœurs haïssables,
Ce peuple d'Hommes faux, de Femmes, d'Agréables,
Sans principes, sans mœurs, esprits bas et jaloux,
Qui se rendent justice en se méprisant tous.
En vain ce peuple affreux sans frein et sans scrupule,
De la bonté du cœur veut faire un ridicule:
Pour chasser ce nuage, et voir avec clarté
Que l'homme n'est point fait pour le méchanceté,
Consultez, écoutez, pour juges, pour oracles,
Les hommes rassemblés: Voyez à nos spectacles,
Quand on peint quelque trait de candeur, de bonté,
Où brille en tout son jour la tendre humanité,
Tous les cœurs sont remplis d'une volupté pure,
Et c'est là qu'on entend le cri de la Nature."[1]

On such an occasion as that which the poet has here so finely and forcibly described;—when the contagious enthusiasm of the multitude has broken down the restraints of reserve; and,

[1] *Le Méchant*, Comédie de Gresset.

opening a free passage to the native feelings of generosity, pity, or virtuous indignation, has extorted, in one and the same moment, from the whole audience, an involuntary burst of emotion, avowing and proclaiming the moral law engraved on their hearts;—on such an occasion, how is it possible to avoid indulging a secret exclamation,—What materials are here for the lawgiver and the statesman! and what a scene might human society become, if these seeds of goodness, so liberally sown by the hand of Heaven, were fostered by the care of more skilful cultivators!

But not to anticipate here, what I may perhaps, on some future occasion, be led to offer, with respect to the connexion between Public Morals and enlightened systems of Political Economy, I shall content myself with remarking the watchful attention which is due by the legislator, in his arrangements both for the instruction and for the amusement of the people, to the obvious conclusions suggested by the phenomena which have been now under review. If I do not deceive myself, many new and important applications of the same principles might be made to the education of youth, notwithstanding the dogmatical assertion of Dr. Johnson, "that education is *now* as well understood, and *has long* been as well understood, as it ever *can* possibly be."* Something, I must once more acknowledge, appears to myself to be still practicable, beyond what was executed or attempted by our forefathers, during the dark ages of Popish superstition. By availing ourselves cautiously of the growing lights of science, to correct the errors, and to supply the omissions of our predecessors, would not additional usefulness and additional stability be at once imparted to their venerable institutions? But on this argument I forbear to enlarge. The period of reformation is, to all appearance, much too distant, to give to the prosecution of it the smallest degree of practical interest.

. . . . "Alas! how faint,
How slow the dawn of beauty and of truth
Breaks the reluctant shades of Gothic night,
Which yet involve the nations!"

* [See *Elem.* vol. ii. p. 170.]

APPENDIX.—See Page 143.

Numberless facts might be adduced, to show how very much the effects of all the imitative arts are aided by the imagination of the spectator or of the hearer. But I shall confine myself in this Appendix to an example which, as far as I know, has not hitherto attracted the notice of philosophers; I mean the art of the *Ventriloquist*,—an art which, if I am not mistaken, will be found, on examination, to bear a closer analogy to the nobler art of the painter, than we should, at first sight, be disposed to apprehend.

In what follows, I take for granted that my readers are acquainted with the distinction, so finely illustrated by Bishop Berkeley, between the original and the acquired perceptions of our different senses; more particularly, between the original and the acquired perceptions of the eye and of the ear. It is on the former of these senses that Berkeley has chiefly enlarged; and *this* he has done with such a fulness and clearness of illustration, that succeeding writers have in general done nothing more than to repeat over his reasonings, with very little either of alteration or of addition. The metaphysical problems relating to the sense of *hearing* have been hitherto overlooked by almost all our physiologists, although they present various subjects of inquiry, not less curious and difficult than those connected with the theory of vision.

The senses of hearing and of seeing agree in this, that they both convey to us intimations concerning the *distances*, and also concerning the *directions* of their respective objects. The intimations, indeed, which we receive by the former, are by no means so precise as those of the latter. They are, however, such as to be of essential use to us in the common concerns of life. That one sound comes from the immediate neighbourhood, another from a distance; one sound from above, another from below; one from before, another from behind; one from the right hand, another from the left; are judgments which we

have every moment occasion to form, and which we form with the most perfect confidence.

With respect to the *signs* which enable us to form our estimates of *distance* by the ear, there is little or no difficulty, as they seem to consist merely of the different gradations of which sounds are susceptible in point of loudness and of distinctness. In what manner our estimates of *direction* are formed, has not, I think, been as yet satisfactorily explained; nor, indeed, do I know of any writer whatever, excepting Mr. Gough of Kendal, who has even attempted the solution of the problem. The difficulty attending it arises, probably, in some measure, from the imperfection of our knowledge concerning the theory of sound; a subject which, after all the researches of Sir Isaac Newton, continues to be involved in considerable obscurity. One thing seems to be pretty obvious, that the effect of which we are *conscious* depends on the *mechanical* impression connected with the direction in which the *last impulse* is made on the organ of hearing; but how this impulse is modified according to the position of the sonorous body, (although that it is so, our daily experience leaves no doubt,) it is not an easy matter to imagine.

If this conclusion be admitted, the imitation of the ventriloquist (in so far as *direction* is concerned) would appear to be not only unaccountable, but quite impossible; inasmuch as the effect on the hearer's ear, which serves to him as a *sign* of the place of the object, does not depend on any particular modification of sound which a mimic can copy, but on the *actual* direction in which the sound falls upon the organ.

Mr. Gough himself seems to be sensible of this, and, accordingly, he supposes the art of the ventriloquist to consist in a power of throwing his voice at pleasure towards the different walls of a room, so as to produce an *echo* in that particular direction which suits his purpose. His own words are: "He who is master of this art, *has nothing to do* but to place his mouth obliquely to the company, and *to dart his words*, if I may use the expression, against an opposing object, whence they will be reflected immediately, so as to strike the ears of

the audience from an unexpected quarter, in consequence of which, the reflector will appear to be the speaker." But to this theory two obvious and insurmountable objections occur: 1*st*, Supposing the ventriloquist to possess this very extraordinary power of producing an echo in a room where none was ever heard before, it still remains to be explained, how this echo comes to drown, or rather to *annihilate*, the original sound. In every case of echo, *two* sounds at least are heard. Whence is it, then, that the echo of the ventriloquist's voice should so completely supplant the original sound, as to occupy solely and exclusively the attention of the audience?

2*d*, Mr. Gough's theory proceeds altogether on the supposition, that the art of ventriloquism can be practised only within the walls of a room; whereas I apprehend the fact to be, that it may be exercised, at least with equal advantage, in the open air. If this last statement be correct, it puts an end to the controversy at once.

I was much pleased to observe the coincidence between both these remarks, (which struck me when I first read Mr. Gough's paper,) and the following strictures on his theory of ventriloquism, in a very ingenious article of the *Edinburgh Review*. After quoting the same passage which I have already referred to, the reviewer proceeds thus:—

"Though this comprehends the scope of the author's doctrine, we are of opinion that it affords a deficient and inadequate explanation even of the case that he relates, in which the ventriloquist performed his operations in a confined room. The power of projecting the voice against a plain wall, so that it shall be reflected to a given point, is difficult, and we may almost say impossible of attainment. But, granting that this power were attained, the reflected tones of the voice must be a mere echo, whilst the sounds proceeding immediately from the mouth of the speaker, being both louder in degree, and prior in point of time, must necessarily, as is the case in every echo, drown the first parts of the reflected sounds, and make the remainder appear evidently different from the original. The author seems to have been led into this theory by the

analogy of light, without perhaps duly considering that the particles of light move successively in direct lines; whereas the undulations of sound must necessarily expand and enlarge, as they proceed on from the sounding body. But the feats of ventriloquism are often performed *sub dio*, when no means for reflecting the voice can be present, and where, of course, the author's doctrine cannot in any respect apply. He has omitted to mention a cause which has a very powerful influence in effecting the deception, viz., the expectation excited in the spectator or hearer, by the artist having previously informed him from whence he proposes to make the sounds proceed. This circumstance, of raising expectation almost to belief, aided by a peculiarly happy talent for imitating singular or striking sounds, such, for example, as the cries of a child in the act of suffocation, is perhaps a more probable explanation of the phenomena of ventriloquism."[1]

In the conclusion of the foregoing passage, the reviewer alludes to the influence of *Imagination* in aiding the illusions of the ventriloquist; a circumstance which Mr. Gough has altogether overlooked, but which, in my opinion, is one of the chief principles to be attended to in this discussion. Indeed, I am strongly inclined to think, that the art of the ventriloquist, *when he produces a deception with respect to direction*, consists less in his imitative faculty, than in the address with which he manages the imaginations of his audience. In this respect ventriloquism and painting appear to me to be exact counterparts to each other. The painter can copy, with mathematical accuracy, the signs of different *direction*; but it is impossible for him to copy *all the signs* connected with difference of *distance*,—for this obvious reason, that the objects in his representation are all at the *same* distance from the eye, and, consequently, are viewed without any change in its conformation, or in the inclination of the optic axes. The ventriloquist, on the other hand, can copy the signs of different *distances*, but not the signs of different *directions*. We know, however, in the case of the eye, that if all the signs of different

[1] *Edinburgh Review*, vol. ii. pp. 194, 195.

direction be copied, as in a correct perspective drawing, the imagination is able to supply, in a considerable degree, the signs of different distances. The imitation may not be so perfect as to produce anything approaching to a deception; but the effect is powerfully assisted by the imagination of the spectator, who, in this, as in all other imitative arts, consults his own pleasure most effectually, when he yields himself up, without resistance, to the agreeable delusions practised on him by the artist. In like manner, in the case of the ear, is it not probable, from analogy, that if the ventriloquist can imitate the signs of different *distances*, the imagination may supply the signs of different *directions?* For this purpose, however, it is necessary that the imagination should be under the management of the ventriloquist;—a management which a little experience and address will easily enable him to acquire; and also, that the ear should be deprived of every aid which it is accustomed to receive from the eye, in judging of the local situations of objects. That both of these things are, to a certain extent, within the reach of his art, will appear from the following slight remarks.

1*st*, The ventriloquist, by concealing the motions of his lips, may contrive to bring the whole of his exhibition under the cognizance of the ear alone. Of the few persons of this description whom I have happened to see, I have uniformly observed that all of them contrived, under one pretext or another, to conceal their faces, while they were practising their imitations. One of the number remarked to me, that the art of ventriloquism would be perfect, if it were possible only to speak distinctly, without any movement of the lips at all.[1]

[1] Are not the deceptions of this kind exemplified in some of the exhibitions of Mathews, facilitated by the slight paralytic distortion of his mouth to one side of the face? In consequence of this accident, when he wishes to conceal the motion of his lips, he has only to turn the other side of his face to the spectators. They, however, who have had the pleasure of seeing him, will readily acknowledge, that this circumstance goes but a very little way to account for his powers as a Ventriloquist. It may contribute something to give a freer scope to their exercise; but by far the greater part of the illusion depends on his singular talents as a mimic, combined with that ascendant over the ima-

2*d*, The ventriloquist may direct the imagination towards that particular quarter from which the sound is supposed to proceed. The possibility of this appears from many facts. I have seen a person, by counterfeiting the gesticulations of a performer on the violin, while he imitated the music with his voice, rivet the eyes of his audience on the instrument, though every sound they heard proceeded from his own mouth. I have seen another, by imitating the barking of a lap-dog, direct the eyes of a whole company below the table.

A mimic of considerable powers, (the late Savile Carey,) who, among his various other exhibitions, imitated very successfully the whistling of the wind blowing into a room through a narrow chink, told me, that by way of experiment, he had frequently practised this deception in the corner of a coffee-house; and that he seldom failed to see some of the company rise to examine the tightness of the windows; while others, more intent upon their newspapers, contented themselves with putting on their hats, and buttoning their coats.

The same thing is exemplified on a greater scale in those theatres (formerly not uncommon on the Continent) where a performer on the stage exhibits the dumb-show of singing, with his lips, and eyes, and gestures, while another, unseen, supplies the music with his voice. The deception in such cases, it is well known, is so complete (*at least at first*) as to impose on the nicest ear and quickest eye. The case I suspect to be very similar with the deceptions of the ventriloquist; whose art seems to me to amount chiefly to a certain degree of address or trick, in misleading the imagination with respect to direction.[1] The rest resolves entirely into a particular modification

ginations of his audience, which he owes to a superiority of comic genius and of theatrical skill, seldom found in union with that secondary accomplishment.

[1] Mr. Gough, who had the misfortune to be blind from his infancy, could not possibly form any judgment, from his own experience, of the length to which this last species of deception may be carried by the help of false intimations or signs skilfully addressed to the eye. It is not, therefore, surprising, that he should have been led to adopt some of those conclusions which I have already taken the liberty to controvert. His paper, on the whole, reflects the highest honour, both on his philosophical sagacity, and on his talents as an accurate and skilful observer.

of mimicry—*that of the signs of distance*—superadded to the other powers which mimics in general possess. Among these powers, that which ventriloquists seem in general most carefully to cultivate, is the power of imitating the modification of sounds which arises from their *obstruction;* of imitating, for example, the voice of a person heard from the adjoining apartment, or from the floor below; or the rattling of a carriage as it passes along the street.

The deception, after all, has but narrow limits; and, I suspect, owes no inconsiderable part of its effect to the sudden surprise which it occasions. It may make up completely for a small difference of direction, but is easily detected, if the difference be considerable, and if the experiment be continued for a length of time. Accordingly, it is only in very large theatres that the division of labour, which I have just now mentioned in the art of the opera-singer, has been attempted with any considerable degree of success. In the progress of the entertainment, I have, in general, become distinctly sensible of the imposition; and have sometimes wondered that it should have misled me for a moment.

It is generally imagined that ventriloquists possess some peculiar organic faculty which is denied to other men. By the ancients they were supposed to have a power of fetching a voice from the belly or stomach. Hence they were called *Ἐγγαστρίμυθοι*. Mr. Gray, in his comments upon Plato, seems plainly to have given credit to this supposition. "Those," says he, "who are possessed of this faculty," (that is, of fetching a voice from the belly or stomach,) "can manage their voice in so wonderful a manner, that it shall seem to come from what part they please, not of themselves only, but of any other person in the company, or even from the bottom of a well, down a chimney, from below stairs, &c., &c., of which I myself have been witness."[1] In what manner this faculty of fetching a voice from the belly or stomach should enable the possessor to work all these apparent miracles, Mr. Gray has not attempted to explain. Among the moderns, a different theory has become

[1] *Gray's Works*, by Mathias, vol. ii. p. 424.

prevalent,—that this peculiar faculty consists in the power of speaking in the act of *inspiration*. Hobbes is the earliest author by whom I have found this idea started: "A man," says he, "that has practised to speak by *drawing in his breath*, (which kind of men in ancient time were called *Ventriloqui*,) and so make the weakness of his voice seem to proceed, not from the weak impulsion of the organs of speech, but from distance of place, is able to make very many men believe it is a voice from heaven, whatsoever he pleases to tell them."[1] The same theory has been adopted in the present times by philosophers of the highest name, and has received countenance from some very accurate observers of my own acquaintance. For my own part, I must acknowledge that I entertain great doubts about the fact, as I cannot conceive what aid the ventriloquist could derive in the exercise of his art from such an extraordinary power, if it were really in his possession. My opportunities, however, of witnessing such exhibitions have been but few, and never afforded me access to a particular examination of the performer; I would be understood, therefore, rather to propose a query for the consideration of others, than to give a decided opinion of my own.[2] That the imagination alone of the spectators, when skilfully managed, may be rendered subservient, in a considerable degree, to the purposes of the ventri-

[1] Hobbes, *Of a Christian Commonwealth*, chap. xxxvii.—If the ventriloquist really possesses this power, it is probably much less by *weakening* the voice, (as Hobbes supposes,) than by divesting it of all the common marks of direction and of locality, that so unnatural a modification of speech is rendered subservient to the purposes of the impostor.

In Plato's Dialogue, entitled *Sophista*, [§ 80.] the following words occur: Ἐντὸς ὑποφθεγγόμενον, ὥς περ τὸν ἄτοπον Εὐρυκλέα. (Plato, Ed. Serrani, vol. i. p. 252, C.) Mr. Gray remarks on this passage, that Eurycles was an Ἐγγαστρίμυθος, and that those who had the same faculty were called after him *Euryclitæ*. Serranus translates ἄτοπον, *importunum et absurdum*. Is it not more reasonable to suppose that Plato used the word ἄτοπον in its literal, and, in this case, much more appropriate sense, to denote the distinguishing faculty of a ventriloquist, by which he contrives to appear *without place or position*, or, which comes to the same thing, to change his apparent place at pleasure: in the words of Seneca, *Nusquam est, qui ubique est.*—(*Epist.* 2.)

[2] I shall ever regret that the state of my health rendered it impossible for me to attend the extraordinary, and, by all accounts, unparalleled performances lately exhibited in Scotland by M. Alexandre.

loquist, I am fully satisfied; and I am rather inclined to think that, when seconded by such powers of imitation as some mimics possess, it is quite sufficient to account for all the phenomena of ventriloquism of which I have ever heard.

Suppose, for example, a ventriloquist to personate a father in the attitude of listening from a window to the voice of his child, who is exposed to some sudden and imminent danger below. It is easy to conceive him possessed of such theatrical skill, as will transport in imagination the audience to the spot where the child is supposed to be placed, and so rivet their attention to what is passing there, as will render his imitation of its feeble and distant cries a much more imposing illusion than it would otherwise be; or, to take a case which is seldom omitted among feats of ventriloquism,—suppose the performer to carry on an imaginary dialogue up a chimney with a chimney-sweeper in danger of suffocation. How imperfect an imitation of a person in such unusual circumstances will be sufficient, if aided by tolerable theatrical powers, to produce such a degree of resemblance as will occasion that amusing surprise and wonder, which are, more or less, the objects of all the Imitative Arts. Even in the case of *painting*, a perfectly complete deception is never the aim of the artist; as a great part of the pleasure arises from the perception of the *difficulty surmounted*, and consequently would be diminished if the painter should to appearance have achieved an impossibility. "Deception," says Sir Joshua Reynolds, "which is so often recommended by writers on the theory of painting, instead of advancing the art, is, in reality, carrying it back to its infant state."[1] Diderot plainly entertained the same idea, and has expressed it still more explicitly, and with much greater precision. "Les arts d'imitation sont toujours fondés sur une hypothèse; ce n'est pas le vrai qui nous charme, *c'est le mensonge approchant de la vérité le plus près possible*."[2] In

[1] Reynolds' *Works*, vol. iii. p. 176. Third edition.

[2] Diderot, *Observations sur un ouvrage intitulé*, "*Garrick et les Acteurs Anglois*."—*Mémoires Historiques*, &c. par M. le Baron de Grimm, tom. i. p. 100. Londres, chez Colburn, 1814.

these few words, Diderot has conveyed completely my notion of the source of the pleasure afforded by the imitations of the ventriloquist.

From the very interesting and intelligent narrative of Captain Lyon, it appears that the art of ventriloquism is not unknown among the Esquimaux, and that it is employed by them for the same purposes to which it was so often made subservient in the ancient world. The following passage appears to me so curious, that I shall transcribe the whole of it:—

"Amongst our Igloolik acquaintances, were two female and a few male wizards, of whom the principal was Toolemak. This personage was cunning and intelligent, and, whether professionally, or from his skill in the chase, but perhaps from both reasons, was considered by all the tribe as a man of importance. As I invariably paid great deference to his opinion on all subjects connected with his calling, he freely communicated to me his superior knowledge, and did not scruple to allow of my being present at his interview with Torngа, or his patron spirit. In consequence of this, I took an early opportunity of requesting my friend to exhibit his skill in my cabin. His old wife was with him, and by much flattery, and an accidental display of a glittering knife and some beads, she assisted me in obtaining my request. *All light excluded*, our sorcerer began chanting to his wife with great vehemence, and she in return answered by singing the Amna-aya, which was not discontinued during the whole ceremony. As far as I could hear, he afterwards began turning himself rapidly round, and, in a loud powerful voice, vociferated for Torngа with great impatience, at the same time blowing and snorting like a Walrus. His noise, impatience, and agitation, increased every moment, and he at length seated himself on the deck, varying his tones, and making a rustling with his clothes.

"Suddenly the voice seemed smothered, and was so managed

as to sound as if retreating beneath the deck, each moment becoming more distant, and ultimately giving the idea of being many feet below the cabin, when it ceased entirely. His wife now, in answer to my queries, informed me very seriously, that he had dived, and that he would send up Tornga. Accordingly, in about half a minute, a distant blowing was heard very slowly approaching, and a voice, which differed from that we at first had heard, was at times mingled with the blowing, until at length both sounds became distinct, and the old woman informed me that Tornga was come to answer my questions. I accordingly asked several questions of the sagacious spirit, to each of which inquiries I received an answer by two loud slaps on the deck, which I was given to understand was favourable. A very hollow, yet powerful voice, certainly much different from the tones of Toolemak, now chanted for some time, and a strange jumble of hisses, groans, shouts, and gabblings like a turkey, succeeded in rapid order. The old woman sang with increased energy; and, as I took it for granted that this was all intended to astonish the Kabloona, I cried repeatedly that I was very much afraid. This, as I expected, added fuel to the fire, until the poor immortal, exhausted by its own might, asked leave to retire. The voice gradually sunk from our hearing, as at first, and a very indistinct hissing succeeded—in its advance, it sounded like the tone produced by the wind on the base cord of an Æolian harp; this was soon changed to a rapid hiss like that of a rocket, and Toolemak, with a yell, announced his return. I had held my breath at the first distant hissing, and twice exhausted myself; yet our conjurer did not once respire, and even his returning and powerful yell was uttered without a previous stop or inspiration of air."[1]

What follows is a farther proof of the extent and versatility of the imitative powers possessed by some of these savages.

"Ohotook, and his intelligent wife Iligliak, paid me a visit, and from them I obtained the names of many birds and animals, by showing specimens and drawings. Their little boy, an ugly and stupid-looking young glutton, astonished me

[1] Captain Lyon's *Private Journal*, pp. 359, 360.

by the aptitude with which he imitated the cries of each creature as it was exhibited. The young ducks answering the distant call of their mother, had all the effect of ventriloquism; indeed, every sound, from the angry growl of a bear, to the sharp hum of a miskitoe, was given in a wonderful manner by this boy."[1]

[1] Captain Lyon's *Private Journal*, pp. 149, 150.

PART THIRD.

CHAPTER I.

OF THE VARIETIES OF INTELLECTUAL CHARACTER.

SECTION I.—GENERAL OBSERVATIONS.

HITHERTO we have been employed in analyzing the Human Understanding into those simple faculties from which our various intellectual operations result. The analysis is, after all, probably far from being complete; but I hope it is sufficiently distinct and comprehensive to afford an explanation of the most important phenomena, and to illustrate the method by which the science may be farther advanced by future inquirers.

Of the Faculties which have passed under review in the former parts of this work, some traces are to be found in the minds of all men. Even Abstraction, that faculty which, more than any other, requires cultivation for its development, is exercised, on many occasions, by children and savages, although in a very inferior degree to that of which speculative minds are capable. These faculties, therefore, may be considered as essential capacities of the human understanding, and as characteristical endowments of our species.

From the various possible combinations and modifications of these faculties result all the varieties of genius and of intellec-

tual character among men. What are the *original* disparities in their capacities, it is impossible for us to ascertain; but, from the analogy of the body, it is presumable that such disparities exist, notwithstanding what has been so ingeniously advanced to the contrary by Helvetius and his followers. I confess, for my own part, that I never was an admirer of this philosophy, so fashionable, about forty years ago, on the continent; but I do not mean to dispute its principles at present. That the different situations into which men are thrown by the accidents of life, would produce great diversities in their talents, even on the supposition that their original capacities were the same, is undoubtedly true; but it is surely pushing the conclusion too far to affirm, that no original inequalities exist; when no proof from the fact can be produced of such an assertion, and when so strong an analogy as that of the natural disparities among men, in point of bodily advantages, leads to an opposite opinion. A farther argument for this, may, I think, be deduced from the art of Physiognomy, which, notwithstanding the exaggerated and absurd pretensions of some of its professors, seems to have a real foundation in the principles of Human Nature. That there are native varieties in the form of the head, and in the cast of the features, will not be disputed; and, if these are at all significant of the intellectual operations, they would lead us to infer a corresponding variety in our mental gifts. It is not a little curious, that this theory of the original equality of minds should form part of the same system which refers all the phenomena of thought to a mechanical organization of the particles of matter.[1]

At the same time, it must be acknowledged, that, supposing two minds to be originally equal in all respects, the most trifling external circumstances may create between them the most important differences in the result. "Ipsi animi, magni refert, quali in corpore locati sint: Multa enim è corpore existunt,

[1] The observations of physicians on the indications of character, to be collected from the bodily *temperaments* of individuals, afford another presumption, equally strong, against the theory of Helvetius.

quæ acuant mentem; multa, quæ obtundunt."[1] How often has the head both of man and woman been completely turned by a more than common share of personal beauty! and how often has a deformity of body led the person afflicted with it to signalize himself by extraordinary mental endowments and accomplishments. "It is good," says Lord Bacon, "to consider deformity, not as a *signe*, which is deceivable, but as a *cause* which seldom faileth of the effect. Whosoever hath anything fixed in his person, that doth induce contempt, hath also a perpetual spur in himself, to rescue and deliver himself from scorn."[2]

Even the effects of *stature* upon the mind are not undeserving of attention. It is remarked by a very accurate and profound observer of human character, that "little men are commonly decisive and oracular in their opinions." To what this is owing, it may not be easy to conjecture; but I have little doubt of the reality of the fact. The whole of the portrait I allude to is so spirited, that we may confidently conclude it was closely copied after nature.

"Nous nous arrêtames auprès de l'université pour regarder quelques affiches de livres qu'on venoit d'attacher à la porte. Plusieurs personnes s'amusoient aussi à les lire; et j'apperçus parmi ceux-là un *petit homme* qui disoit son sentiment sur ces ouvrages affichés. Je remarquai qu'on l'écoutait avec une extrême attention, et je jugeai en même tems qu'il croyait

[1] Cicero, *Tuscul. Disp.* lib. i. c. 33.

[2] Bacon's *Essays*.—This very deep and just observation was probably pointed at the Physiognomical Theories of Campanella, then much in fashion over Europe,—theories in which, it cannot be denied, there is much truth; but to which numerous exceptions may be expected to occur, from the superiority of moral over physical causes, when they are fairly brought into competition with each other.

Crine ruber, niger ore, brevis pede, lumine læsus,
Rem magnam præstas, Zoïle, si bonus es.—
Martial, *Epig.* 54.

The epigrammatic point in these lines is sufficiently happy; but the thought is trite and shallow, when compared with the hint suggested by Bacon, to attend chiefly, in such cases, to the probable effect, upon a powerful mind, of these physical disadvantages, in rousing a noble ambition to surmount the obstacles which they oppose to its progress.

For some ingenious and pleasing illustrations of this idea, see an *Essay on Deformity*, by William Hay, Esq. London, 1754.

mériter qu'on l'écoutât. Il paroissoit vain, et il avoit l'esprit décisif, *comme l'ont la plupart des petits hommes.*" [1]

I have often thought that it would furnish an interesting and important subject of inquiry, to examine the effects produced on the intellectual faculties by the different pursuits to which men betake themselves in a civilized society; and with this view, in treating of the power of Abstraction,* have suggested a few hints with respect to the effects resulting from habits of speculation considered in contrast with habits of business. These very slight remarks, however, were confined to the most general and obvious cases of the problem, and throw but little light on those more delicate peculiarities which take their rise from particular studies, and which distinguish the different classes of literary men from each other. The Metaphysician, (for example,) the Mathematician, the Poet, the Critic, the Antiquary, strengthen, by their respective pursuits, a corresponding combination of faculties and principles, while they suffer others to remain without due cultivation: and it is surely an inquiry which promises to be at once curious and useful, to ascertain, with somewhat of logical precision, in what respects their intellectual characters may be expected to be severally marked and discriminated.

Before, however, I proceed to this subject, I shall avail myself of the present opportunity to add a few observations of a more general nature, in farther prosecution of those which I have offered in my first volume.

In reflecting on the endless varieties of human character, one of the most important, and, at the same time, one of the most obvious distinctions that occur to us, is between those men who, in the conduct of life, are guided by steady and systematical views; and that much more numerous class who, without any fixed principles, are influenced from day to day by immediate prospects of interest and ambition, by the force of passion, by the caprice of the moment, or by the ever-changing opinions and manners of the times. It is evident, that of neither of these two descriptions of individuals can any just estimate be

[1] *Gil Blas*, liv. iv. chap. vi.

* [*Elem.* vol. i. ch. iv. § 7.]

formed from a hasty survey or an occasional acquaintance. The weakest and most unprincipled, if seen at some lucky conjuncture, when interest, or humour, or fashion, happen to point out the same path with reason and duty, may be supposed to be actuated by motives to which he is a stranger; while, on the other hand, a man of the most decided character and the most comprehensive sagacity, if judged of by an observer of a more limited mind than himself, may be censured as wavering and inconsistent in his purposes, from a hasty view of those very measures which, if combined with the other parts of his history, would afford the most unequivocal proofs of the unceasing constancy with which he had prosecuted his object. It is they alone who are acquainted with all the circumstances of a long voyage—with the variable winds and the accidental currents, according to which the pilot was forced, from time to time, to shape his course—who are able to pronounce on his attention and skill as a navigator. To a spectator who happened only to observe the ship when on a particular tack, how different might its destination appear from what it was in reality! And how essentially necessary may have been this apparent deviation, to steer it to the harbour for which it was bound!

Of the differences now remarked in the conduct of individuals, part depend on intellectual, and part on moral character. To the former class must be referred the original conception of a magnificent design, and the arrangement of the measures by which it is to be accomplished. To the latter, the steadiness, perseverance, and force of mind displayed in carrying it into execution; and, above all, its ultimate tendency with respect to the happiness and improvement of our fellow-creatures. Notwithstanding, however, the justness of this theoretical distinction, it will be found to require less attention in the actual study of human nature than might at first be expected. A comprehensive and enlightened understanding is but rarely unaccompanied with a corresponding enlargement and benevolence of heart; and still fewer are the cases in which a weak, shallow, and contracted head does not contrive to shape, for its own ends, a selfish, casuistical, and pettyfogging code of morality.

If, from the crowd who are occupied only about their own personal concerns, we turn our thoughts to those who move in a higher sphere, and study the history of the few statesmen who have laboured to identify their fame with the permanent interests of their country and of mankind, we shall find many additional reasons for distrusting, in *their* case, the opinions formed with respect to them by their contemporaries. Accustomed by their habits of thought (and *wisely* accustomed for the objects they had in view) to look rather to general principles than to temporary expedients, they no doubt laid their account, in proportion as they were confident of the ultimate result, with sinking, in the meantime, below the level of men who, by flattering the passions and prejudices of their times, have seemed to lead that multitude which they only followed. "The children of this world," it is said in Scripture, "are wiser *in their generation* than the children of light;" and it is, accordingly, from generations yet to come, that they who "shine as lights in the midst of darkness" must expect their reward.

Nor is even *this* reward certain, excepting where a long career of public life has completely unfolded the general principles of policy by which their conduct, amidst all its apparent anomalies, was systematically guided. What was formerly remarked with respect to projectors in the concerns of private life, is still more strikingly exemplified in the case of statesmen; that they are often overtaken by ruin, while sowing the seeds of a harvest which others are to reap. "A few years more might have secured to themselves the prize which they had in view; and changed the opinion of the world, (which is always regulated by the accidental circumstances of failure or of success,) from contempt of their folly, into admiration of their sagacity and perseverance.

"It is observed by Comte de Bussi, [Bussy-Rabutin ?] that 'time remedies all mischances, and that men die unfortunate, only because they did not live long enough. Mareschal d'Estrées, who died rich at a hundred, would have died a beggar, had he lived only to eighty.' The maxim, like most

other apophthegms, is stated in terms much too unqualified; but it may furnish matter for many interesting reflections to those who have surveyed, with attention, the characters which have passed before them on the stage of life; or who amuse themselves with marking the trifling and fortuitous circumstances by which the multitude are decided, in pronouncing their verdicts of foresight, or of improvidence."[1]

But in this field, which is obviously of boundless extent, I must not indulge myself in expatiating longer. A much more limited view of the subject is all that I have destined for the matter of this Chapter; in which I propose only to treat, and that very briefly, of the practical tendency of certain scientific pursuits to modify the intellectual powers. I begin, first, with considering the tendency, in this respect, of Metaphysical Inquiries; after which, I shall consider, secondly, the Effects of Mathematical Studies; and, thirdly, the Effects produced by the Culture of those Arts which are addressed to the Imagination. The considerations stated under these three heads, together with a few remarks which I shall add on the Characteristical Differences of the Sexes, will serve as a sufficient specimen of the disquisitions to which I allude.

SECTION II.—THE METAPHYSICIAN.*

I had formerly occasion to mention the etymology of the word *Metaphysics*, and the different acceptations in which it has, at different times, been used in the schools of philosophy.† In this section, however, I employ it in that loose and popular sense in which it is generally understood in our own language; —a sense so very extensive, as to confound together, in the common apprehensions of mankind, a great variety of studies which have a very remote relation to each other; but which, as they all require nearly the same sort of mental exertion,

[1] *Elements of the Philosophy of the Human Mind*, vol. ii. p. 110.

* [For sundry remarks upon the effect of metaphysical studies, see above, *Elem.* vol. i. (*Works*, ii.) p. 419, *seq.*—*Ed.*]

† [See above, *Dissertation*, &c. (*Works*, vol. i.) p. 475, *seq.*; below, *Essays*, (*Works*, vol. v.) *Prel. Diss.* ch. i.—*Ed.*]

may, without any impropriety, be classed together in the following disquisition. Of these studies, the first, in point of dignity, as well as utility, is unquestionably that which relates to the faculties and powers of the human mind: to which may be added, as branches of the same science, our logical inquiries concerning the conduct of the understanding,—our ethical inquiries concerning the theory of morals,—our philological inquiries concerning universal grammar,—our critical inquiries concerning the philosophy of rhetoric and of the fine arts. The same word *Metaphysics* is applied to those abstract speculations which relate to the objects of mathematics and of physics, —to our speculations, for example, with respect to number, proportion, space, duration,—the first principles of the algebraical art,—the first principles of the method of fluxions,—the first principles of the calculus of probabilities,—the measurement of forces, and of the other quantities which fall under the consideration of the natural philosopher,—the history of our ideas of hardness, softness, extension, figure, motion, and of other analogous affections of matter, which, in consequence of our early familiarity with them, are seldom subjected to a scientific examination. Above all, it continues to be applied (and, according to vulgar opinion, with peculiar propriety) to the scholastic discussions concerning the nature and essence of the soul, and various other topics on which experience and observation supply us with no *data* as a foundation for our reasonings.

In the different acceptations which have been just enumerated, of the word Metaphysics, it appears, at first sight, to convey ideas altogether unconnected. It is not improbable, however, that we may be able, by a little attention, to trace some circumstances common to them all. When a philosophical term is transferred from one thing to another, it seldom happens that the transference is made wholly at random. Some sort of connexion or analogy has been perceived between the two subjects, by a kind of intuition, although it may require much reflection to enable us to say in what the connexion consists. The study of the metaphorical, and perhaps still

more of (what I have elsewhere called) the *transitive*[1] application of language, may, in this way, often assist us in tracing the relations among the different objects of our knowledge; or, at least, may help us to account for the intellectual process by which men have been led to comprehend, under a common term, things apparently different, and even heterogeneous.

With respect to the inquiries formerly enumerated, they will all be found, upon examination, to agree in this,—that they require the same sort of mental exertion for their prosecution, inasmuch as all of them depend, for their chief materials, on that power (called by Mr. Locke *Reflection*) by which the mind turns its attention inwards upon its own operations, and the subjects of its own consciousness. In researches concerning our intellectual and active powers, the mind directs its attention to the faculties which it exercises, or to the propensities which put these faculties in motion. In all the other inquiries which were mentioned, the materials of our reasoning are drawn chiefly, if not entirely, from our own internal resources. Thus, the knowledge we have of Space and Duration is not derived from an experimental examination of things external, but from reflection upon ideas coeval with the first exercise of our senses. The ideas are, indeed, at first suggested to the mind by the perceptions of sense; but when we engage in metaphysical inquiries concerning them, all our knowledge is derived from materials within ourselves. In like manner, it is from sense that we derive our ideas of Hardness, Softness, Figure, and Motion; but when these ideas have been once formed, the metaphysician is in possession of all the *data* from which his subsequent conclusions with respect to them are to be deduced: nor could he derive any assistance in such inquiries from a thousand experiments on hard, soft, figured, or moving bodies. Indeed, all the metaphysical knowledge which we ever can acquire about these qualities, amounts only to a knowledge of

[1] An expression which I have borrowed from the late very ingenious Mr. Payne Knight, author of the *Analytical Inquiry into the Principles of Taste*.—See *Philosophical Essays*, p. 218. [*Infra*, *Works*, vol. v.]

the manner in which our ideas of them are first introduced into the mind; or, to speak more properly, of the occasions when our thoughts were first led to those subjects. Although, therefore, our metaphysical inquiries concerning hardness, softness, figure, and motion, seem, at first, to have for their objects external existences, yet they are carried on entirely by the exercise of reflection on our mental operations. Similar observations are applicable to our metaphysical inquiries concerning number and proportion. In our critical researches concerning the principles of the fine arts, our object is, to arrest those ideas which commonly pass through the mind so rapidly as not to be attended to, in order to detect the causes on which our pleasures depend,—an exercise of our faculties very similar to that which we have been now considering. In short, I apprehend that all our metaphysical speculations on these points aim only at a more precise *definition* of our ideas; or rather at a description of the occasions on which they are formed.

From this account of the nature and object of metaphysical studies, it is evident that those individuals who are habitually occupied with them cannot fail to acquire a more than ordinary capacity of withdrawing their thoughts from things external, and of directing them to the phenomena of mind. They acquire, also, a disposition to examine the origin of whatsoever combinations they may find established in the fancy, and a superiority to the casual associations which warp common understandings. Hence an accuracy and a subtlety in their distinctions on all subjects, and those peculiarities in their views, which are characteristical of unbiassed and original speculation. But, perhaps, the most valuable fruit they derive from their researches, is that scrupulous precision in the use of language, upon which, more than upon any one circumstance whatever, the logical accuracy of our reasonings, and the justness of our conclusions, essentially depend. Accordingly, it will be found, on a review of the History of the Sciences, that the most important steps which have been made in some of those apparently the most remote from metaphysical pursuits, (in the science, for example, of *Political Economy*,) have been

made by men trained to the exercise of their intellectual powers, by early habits of abstract meditation.[1]

These important advantages, however, are not to be purchased by the metaphysician, without some danger of corresponding inconveniences. As the materials of his reasoning in his favourite inquiries lie entirely within himself, he has no occasion to look abroad for objects to furnish an exercise to his powers, or to gratify his curiosity; and unless he is at much pains to counteract this tendency by other studies, will be apt to contract gradually an inattention to what is passing around him, and a want of interest in the observation, not only of physical phenomena, but of the characters and manners of the society around him. When the mere metaphysician, accordingly, is called on to exercise his faculties on other subjects, he cannot easily submit to the task of examining details, or of ascertaining facts; and is apt to seize on a few *data* as first principles, following them out boldly to their remotest consequences, and afterwards employing his ingenuity to reconcile, by means of false refinements, his theoretical assumptions with the exceptions which seem to contradict them. The stock of his acquired knowledge, too, is frequently extremely limited; the phenomena about which his curiosity is habitually occupied furnishing inexhaustible materials to his powers of reasoning and invention, without subjecting him to the fatigue of minute and circumstantial observation, or of a laborious research into the opinions of others. What farther contributes to limit his information, is the insulated nature of his pursuits. Most of the other sciences have such mutual connexions and relations, that the attention we bestow on any one excites our curiosity with respect to the rest; while they all unite in a common tendency to lead the thoughts occasionally to those speculations which the metaphysician considers as his peculiar province. Of his appropriate studies alone, it is a distinguishing characteristic to engross to themselves that attention which they have once deeply engaged, and, by withdrawing the curiosity from the fields of observation, of experiment, and of research, to shut up all the external channels of intellectual improvement.

[1] Locke, Hume, Smith, Quesnai, Turgot, Morellet, Genovesi, [Romagnosi,] &c.

Metaphysical studies, when their effects are not powerfully controlled by the moral principles and feelings of our nature, have a tendency to encourage a disposition to unlimited scepticism on the most interesting and important subjects of philosophical inquiry. As they show us the accidental origin of many of those associations which we were previously accustomed to consider as inseparable from our constitution, they are apt to suggest doubts with respect to the certainty of opinions for which we have the clearest evidence. The impression produced by such doubts is the greater, as we have not here the same checks on the abuses of our reasoning powers, which serve to guard us against error in the other sciences. In physics, our speculative mistakes are contradicted by facts which strike our senses. In mathematics, an erroneous supposition leads to its own correction, by the absurdity and inconsistency in which it involves us. But, in metaphysics, the absurdities and inconsistencies to which we are led by almost all the systems hitherto proposed to the world, instead of suggesting corrections and improvements on these systems, have commonly had the effect of producing scepticism with respect to all of them alike. We have a memorable instance of this in the following candid confession of Mr. Hume:—"The intense view of these manifold contradictions and imperfections in human reason has so wrought upon me and heated my brain, that I am ready to reject all belief and reasoning, and can look upon no opinion as more probable or likely than another."[1]

Metaphysical studies, when carried to an excess, have, moreover, a tendency to repress the enthusiasm of our active pursuits, and to deaden our sensibility to many of the best enjoyments of which our nature is susceptible. In ardent minds, habitually occupied with the business of life, the intellectual powers are directed to their proper objects, without attracting (at least in the moment of their exercise) any attention to themselves; and the more completely the object engrosses the thoughts, the less is the understanding likely to speculate about its own operations. In the case of the metaphysician, the

[1] *Treatise of Human Nature*, vol. i. p. 466, first edition.

attention is divided between the object and his own mind; and frequently the former is valued only so far as it furnishes an occasion for experiments and observations on the latter.

A similar effect is produced by the same studies on our sensibility to the various sources of agreeable emotion, more particularly in matters of taste. By withdrawing our attention from the pleasures we experience, and directing it to an investigation or analysis of their sources, they have a tendency to dispel the enchantment upon which, in numberless instances, the pleasing effect depends. The beauties of art, and sometimes even those of nature, vanish before the eye of the microscopical observer; or at least are to be relished only in full perfection, when we yield ourselves up to the gratifications which they offer. It is, accordingly, in the thoughtless period of youth alone, that they fill the soul with rapture, and warm it into enthusiasm. We feel a delightful wonder at the new world which is opening to our senses, and at the untried capacities of the Human Mind; but are too much engrossed with the pleasures we enjoy, to think of tracing their efficient or their final causes. Our situation resembles that of the heroes of romance, when they find themselves surrounded with beautiful scenes which have been called into existence by the power of magic, and are ravished with celestial music without being able to perceive the musician.[1]

[1] The following are the remarks of the Abbé Morellet on the impressions which he received on his first arrival at Rome, from the masterpieces of painting and statuary with which that capital abounds. As he was from his youth passionately addicted to metaphysical pursuits, and eminently distinguished by habits of deep reflection, his testimony on this subject is of peculiar value. "Je dois dire à ma honte, que l'impression que je recevais de ces chefs-d'œuvres des arts était faible en comparaison de celle que je voyais en quelques véritables amateurs et dans les artistes. D'abord ma vue est un peu courte, ce qui est un désavantage immense; mais ensuite je suis fort incliné à croire que l'habitude de penser un peu profondément, d'occuper au dédans toutes les facultés de son âme, de se concentrer pour ainsi dire en soi, est, jusqu'à un certain point, ennemie ou exclusive de la sensibilité que demandent les Arts du dessein. Difficilement un Métaphysicien sera-t-il un habile Artiste, ou un habile Artiste un bon Métaphysicien. Celui-ci est un homme intérieur qui ne voit qu'en lui même, qui a, si j'ose ainsi parler, les yeux tournés en dédans; l'artiste et l'amateur sont, au contraire, tout yeux, et tout oreilles, leur âme se

While metaphysical studies, however, contract in this way the sphere of our enjoyment, they enlarge it in another by the pleasures arising from the exercise of the understanding, and from the gratification of the curiosity. Whether the compensation be complete or not, I shall not at present inquire;[1] as my object is, not to compare the advantages and disadvantages of different literary pursuits, but to remark their general effect in modifying the principles of our nature, as intellectual, active, and sensitive beings. Whatever opinion we may form on this speculative question, one thing seems to be equally indisputable, that if the pleasures of Imagination, when uncontrolled by the exercise of the reasoning faculty, affect the mind with the most exquisite delight, it is only by combining the pleasures arising from both parts of our frame, that the duration of the former can be prolonged beyond the short period of youth; or that they can be enjoyed even then, for any length of time, without ending in languor and satiety. The activity which always accompanies the exercise of our reasoning powers, seems, in truth, to be essentially necessary to enliven the comparatively indolent state of mind which the pleasures of Imagination and of Taste have a tendency to encourage. Such a combination, too, will be found the most effectual, perhaps the only expedient, for preserving the powers of Imagination and

répand au dehors; les couleurs, les formes, les situations, voilà ce qui les frappe sans cesse, tandis que le philosophe n'est occupé que de rapports, de différences, de généralités, d'abstractions.

"Que cette opposition de l'esprit et du goût des beaux arts avec l'esprit métaphysique et philosophique soit générale ou non, je déclare qu'au moins elle est en moi jusqu'à un certain degré. Les tableaux m'ont fait peu de plaisir."—*Mémoires de l'Abbé Morellet*, tom. i. pp. 56, 57.

[1] What was Sterne's opinion upon this point may be guessed from the following passage: "I would go fifty miles on foot to kiss the hand of that man whose generous heart will give up the reins of his imagination into his author's hands,—be pleased he knows not *why*, and cares not *wherefore*." Mr. Burke has expressed the same opinion in stronger and less equivocal terms. "The pleasures of imagination," he observes, "are much higher than any which are derived from a rectitude of the judgment; the judgment is, for the greater part, employed in throwing stumbling-blocks in the way of the imagination, in dissipating the scenes of its enchantment, and, in tying us down to the disagreeable yoke of our reason."—See the *Essay on Taste*, prefixed to his *Inquiry into the Sublime and Beautiful*.

Fancy in full vigour to the close of life; while, on the other hand, without the *stimulus* which these powers apply to our active propensities, Reasoning and Invention would have scarcely any motive to animate their exertions, after the period when the stronger passions have spent their force.

The field in which the powers of the Metaphysician appear to greatest advantage, is in general and comprehensive views of Science, and of Human affairs; such views as Leibnitz ascribes to Bacon and Campanella in the following passage:[1]— "Some men, in conducting operations where an attention to minutiæ is requisite, discover a mind vigorous, subtile, and versatile, and seem to be equal to any undertaking how arduous soever. But when they are called upon to act on a greater scale, they hesitate, and are lost in their own meditations; distrustful of their judgment, and conscious of their incompetency to the scene in which they are placed; men, in a word, possessed of a genius rather acute than comprehensive. . . . A similar difference may be traced among authors. What can be more acute than Descartes in physics, or than Hobbes in morals! And yet, if the one be compared with Bacon, and the other with Campanella, the former writers seem to grovel upon the earth,—the latter to soar to the heavens, by the vastness of their conceptions, their plans, and their enterprises; and to aim at objects beyond the reach of the human powers. The former, accordingly, are best fitted for delivering the first elements of knowledge, the latter for establishing conclusions of important and general application."

This tendency to abstraction and generalization commonly grows upon us as we advance in life; partly from our own growing impatience in the study of particulars, and partly from the inaptitude of our declining faculties to embrace with accuracy a multiplicity of minute details. Hence, the mind is led to experience an increasing delight in those vantage-grounds which afford it an enlarged survey of its favourite objects. The

[1] How Leibnitz was led to unite these two names, it is not easy to imagine. [The passage which is freely translated, will be found in Dutens' edition of the *Opera Leibnitii*, vol. vi. P. i. p. 303.—*Ed.*]

flattened eye which can no longer examine the microscopical beauties of an insect's wing, may yet enjoy the variegated tints of an autumnal wood, or wander over the magnificence of an Alpine prospect.

Is it not owing to this, among other causes, that time appears to pass more swiftly the longer we live? As the events we contemplate swell in magnitude and importance, (the attention being daily less engrossed with individuals, and more with communities and nations,) the scene must, of course, shift more slowly, and the plot advance more leisurely to its accomplishment. Hence that small portion of our thread which remains unspun, appears to bear a less and less proportion to the space likely to be occupied by the transactions in which we are interested. Franklin, towards the close of life, complained repeatedly in my hearing, that time passed much more rapidly in his old age than when he was young. "The year," he said, "is no sooner begun than it is ended;"—adding, with his usual good humour, "I am sometimes tempted to think they do not give us so good measure now as formerly." Whoever compares the latter part of this great man's history with his first outset, will not think this change in his estimate of time very wonderful.

The feelings which Franklin experienced when an old man, in consequence of the accidental circumstances of his history, are the natural effects of the habits of thinking which the philosopher loves to indulge. In consequence of these habits, he feels every day more and more as a citizen of the world; and, associating himself with the inhabitants of the most remote regions, takes a deeper interest in the universal drama of human affairs. And if, in consequence of this, his years should appear to pass over his head more swiftly, it must be remembered that, after a certain period of life, this ceases to be a misfortune. Franklin himself, while he affected to hold a different language, plainly considered the matter in this light; and, indeed, could not have given a stronger proof of the happiness of his old age, than by the complaints he made of the rapid flight of time. It is only when our prospects accord with our wishes, that we are liable to the influence of this illusion.

SECTION III.—THE MATHEMATICIAN.

The intellectual habits of the Mathematician are, in some respects, the same with those we have been now considering; but, in other respects, they differ widely. Both are favourable to the improvement of the power of *attention;* but not in the same manner, nor in the same degree.

Those of the metaphysician give a capacity of fixing the attention on the subjects of our consciousness, without being distracted by things external; but they afford little or no exercise to that species of attention which enables us to follow long processes of reasoning, and to keep in view all the various steps of an investigation till we arrive at the conclusion. In mathematics, such processes are much longer than in any other science; and hence the study of it is peculiarly calculated to strengthen the power of steady and concatenated thinking,—a power which, in all the pursuits of life, whether speculative or active, is one of the most valuable endowments we can possess. This command of attention, however, it may be proper to add, is to be acquired, not by the practice of the modern methods, but by the study of the Greek geometry; more particularly, by accustoming ourselves to pursue long trains of demonstration, without availing ourselves of the aid of any sensible diagrams; the thoughts being directed solely to those ideal delineations which the powers of conception and of memory enable us to form.[1]

[1] The following remark of Descartes on a peculiarity in the intellectual character of mathematicians has, at first view, very much the air of a paradox; and yet, from the great eminence of the author, both in mathematics and metaphysics, everything that falls from his pen on such a subject is well entitled to a careful examination. His words, literally interpreted, seem to imply, that *Imagination* is a faculty which mathematical studies tend, in an extraordinary degree, to exercise and cultivate, and that it is owing to this that mathematicians seldom succeed in metaphysical reasonings; whereas the obvious and indisputable fact is, that of all the departments of human knowledge, mathematics is that in which imagination is least concerned. "Admodum difficile est, uti scribis, Analystarum vestrorum opiniones de existentia Dei, deque honore illi exhibendo, corrigere, non quod desint satis validæ rationes quibus con-

It is not, however, on such efforts alone that the success of our researches depends in many of our most important inquiries. How accurate soever the logical process may be—if our first principles be rashly assumed,—or, if our terms be indefinite and ambiguous, there is no absurdity so great that we may not be brought to adopt it; and it unfortunately happens that, while mathematical studies exercise the faculty of reasoning or deduction, they give no employment to the other powers of the understanding concerned in the investigation of truth. On the contrary, they are apt to produce a facility in the admission of

vincantur, sed quia ejusmodi homines cum putent se pollere ingenio, sæpe sunt minus quam alii, rationi obsequentes; ea enim ingenii pars, *imaginatio* nempe, quæ ad Mathesin maxime juvat, plus nocet quam prodest ad metaphysicas speculationes."—Cartesii *Epist.* Pars ii. Ep. xxxiii. [p. 130, ed. Lond. See also Pars i. Ep. xxx. p. 63, and Baillet, *Vie de Descartes, passim.—Ed.*]

On a more attentive consideration, however, of this passage, it occurs to me, that the word *imagination* is to be here understood, not in its ordinary sense, but as synonymous with *conception*, as defined and used in these *Elements*; on which supposition the remark of Descartes amounts to no more than this, that the habit of geometers of contemplating *diagrams* while carrying on their reasonings, is adverse to the cultivation of those powers of abstracted reflection, on which the success of our metaphysical researches depends. I am confirmed in the justness of this interpretation by a passage in a letter addressed to Earl Stanhope, (22d of March, 1751,) by the late Dr. Robert Simson of Glasgow, in which that very distinguished mathematician plainly understands the word *Imagination* in the same sense in which I have supposed it to be employed by Descartes. This passage is, on other accounts, an object of curiosity; as the slightest relic from the hand of such a writer always is, when he records any phenomena connected with the history of his own mind.

"Persons of my age (now past sixty-three) generally lose the ability they had when younger, of a quick and ready *imagination*; and their memory (which, in my opinion, is either the imagination of sensations past, or the recalling the imaginations we had formerly) manifestly decays; and so far with me, that I have oftentimes difficulty to recall those I had the last hour, or even a few minutes before. And in long investigations, where it is necessary to look back a good way, this inability is most easily observed, especially where most of the steps are not wrote down; for I remember when I could go through a longer series of steps without writing than I can now well do with the help of it. This, my lord, makes me afraid that I shall not be able to engage in the undertaking you are pleased to recommend to me, and which, indeed, would be very agreeable to me; the applying the method of the ancients to the modern inventions, so as they might be demonstrated in such a way as would (to use your lordship's just and elegant description of accuracy and strictness) convince a Euclid, an Archimedes, or an Apollonius, risen from the grave to examine them."—See the very interesting *Memoir of Dr. Simson*, by Dr. Traill.

data; and a circumscription of the field of speculation by partial and arbitrary definitions. Of this, many examples might be quoted from the works of those geometricians and algebraists who, without the advantages of a very liberal education, or of an extensive commerce with the world, have ventured to speculate on questions beyond the limits of their ordinary pursuits. A very respectable mathematician of the Roman Catholic persuasion seems to have felt somewhat of this bias in himself, when he excused himself from intermeddling with theological disputes by saying, "That it was the business of the Sorbonne to discuss; of the Pope to decide; and of the mathematician to go to heaven in a perpendicular line."[1] The atheism and materialism professed by some late mathematicians on the Continent, is, I suspect, in many cases to be ascribed to the very same cause; a credulity yielding itself up as blindly to the fashionable disbelief of the day, as that of their predecessors submitted itself to the creed of the infallible church.[2]

The bias now mentioned is strengthened by another circumstance,—the confidence which the mere mathematician naturally acquires in his powers of reasoning and judgment;—in consequence of which, though he may be prevented, in his own pursuits, from going far astray, by the absurdities to which his errors lead him, he is seldom apt to be revolted by absurd conclusions in the other sciences. Even in physics, mathematicians have been led to acquiesce in conclusions which appear ludicrous to men of different habits. Thus, in the *Mechanics* of Euler, that illustrious man, after arriving at a result, which

[1] "Il disoit en propres termes (M. Ozanam) qu'il appartient aux docteurs de Sorbonne de disputer, au Pape de prononcer, et au mathématicien d'aller au Paradis en ligne perpendiculaire."—*Eloge de M. Ozanam*, par Fontenelle.

[2] Mr. Locke speaks somewhat vaguely on the subject of mathematical studies. "Would you have a man *reason* well, you must use him to it betimes, exercise his mind in observing the connexion of ideas, and follow them in train. Nothing does this better than mathematics, which, therefore, I think, should be taught all those who have the time and opportunity, not so much to make them mathematicians, as to make them *reasonable* creatures."—*Conduct of the Understanding.* Lord Bacon is much more precise on this head. "If a man's wit be wandering, let him study the mathematics; for in demonstrations, if his wit be called away never so little, he must begin again."—*Essays.*

startled his own common sense from its apparent extravagance, professes, nevertheless, in the following memorable words, his implicit faith in the infallibility of the algebraical art: "Sed potius calculo Algebraico quam nostro judicio est fidendum."[1] The intrepidity with which the earliest writers on the *arithmetic of infinites* followed out their principles to their most paradoxical and revolting conclusions, affords a still more palpable illustration of the same remark.

The following instances of a misapplication of mathematical principles are mentioned by the first mathematician of the present age.

"I rank also in the number of illusions, the application which Leibnitz and Daniel Bernouilli have made of the calculus of probabilities to the summation of series. If we reduce the fraction, whose numerator is 1, and whose denominator is $1 + x$, to a series, whose terms are arranged according to the powers of x; it is easy to see, that, supposing $x = 1$, the fraction becomes $\frac{1}{2}$; and the series becomes $+ 1 - 1 + 1 - 1$, &c. &c. By adding the two first terms, the two next, and so of the rest, we transform the series into another, having each term = Zero. Hence, Grandi, an Italian Jesuit, had inferred the possibility of the Creation; because the series being always equal to $\frac{1}{2}$, he saw that fraction created out of an infinity of Zeros; that is, out of nothing.[2] It was thus that Leibnitz saw an image of the Creation in his binary arithmetic, where he employed only two characters, Zero and Unity. He imagined that Unity might represent God, and Zero, nothing; and that the Supreme Being might have brought all things out of nothing, as Unity with Zero expresses all numbers in this system of arithmetic. This idea pleased Leibnitz so much, that he communicated the remark to the Jesuit Grimaldi, president of the Mathematical Board in China, in the hope that this emblem of the creation would convert to Christianity the reigning em-

[1] See Robin's *Remarks on Euler's Treatise of Motion*, sections 27, 28, 29, 30, 59.

[2] To readers unaccustomed to the algebraical notation, it may be proper to mention that Grandi's inference amounted to this, that an infinite series of nothings is equal to one-half.

peror, who was particularly attached to the sciences. I record this anecdote only to show how far the prejudices of infancy may mislead the greatest men."[1]

The misapplications of mathematical principles here pointed out by Laplace, are certainly extremely curious, and may furnish a subject for very important reflections to the philosophical logician; but while they serve to illustrate *the influence exercised over the most powerful minds by the prejudices of infancy*, they may be considered also as examples of the absurdities into which mathematicians are apt to run, when they apply their predominant habits of thinking and reasoning to the investigation of metaphysical or moral truths. Some other examples of the same thing might, if I do not greatly deceive myself, be produced even from the *Philosophical Essay on Probabilities*, [of Laplace himself.]

In a very ingenious and learned article of the *Supplement* to the *Encyclopædia Britannica*, (*Arithmetic*, commonly, and I believe justly, ascribed to one of my best friends,*) the following passage occurs:—"The formation of *circulating decimals* affords a fine illustration of that secret concatenation which binds the succession of *physical events*, and determines the various, though lengthened cycles of the returning seasons;[2] a principle which the ancient Stoics, and some other philosophers, have boldly extended to the moral world." This remark, I cannot help considering as a still *finer illustration* of the influence of mathematical habits of thinking on an understanding remarkable for its vigour and originality.

These inconvenient effects of mathematical studies are to be cured only by an examination of the circumstances which discriminate mathematics from the other sciences; and which enable us, in that branch of knowledge, to arrive at demonstrative certainty, while, in the others, nothing is to be looked for beyond probability. Had these circumstances been duly

[1] *Essai Philosophique sur les Probabilités*, par M. le Comte Laplace, pp. 194, 195.

* [Professor Leslie, in whose behalf Mr. Stewart had written in 1805, *A short Statement, &c., relative to the late Election of a Mathematical Professor in the University of Edinburgh, &c.—Ed.*]

[2] Are we then to consider circulating decimals as physical events?

weighed by Pitcairn and Cheyne, they would never have conceived the extravagant project of compensating, by the rigour of a few mathematical steps, for the uncertainty which must necessarily attend all our *data*, when we reason on medical subjects. "Non dubito," says the former of these writers, "me solvisse nobile problema, quod est, dato morbo, invenire remedium. Jamque opus exegi." Other attempts, still more absurd, have been made to apply mathematical reasoning to morals.

The bias towards dogmatism, which I have been now imputing to mathematicians, is, I am sensible, inconsistent with the common opinion, that their favourite pursuits have a tendency to encourage a sceptical disposition, unfriendly to the belief of moral truths, and to a manly and steady conduct in the affairs of life. As no evidence is admitted by the mathematician in his own inquiries, but that of strict demonstration, it is imagined that there is a danger of his insisting on the same evidence with respect to some truths which do not admit of it. The late Dr. John Gregory himself, the early part of whose life was devoted to mathematical pursuits, and who possessed a considerable share of the mathematical genius which has been so long hereditary in his family, while he avows his own partiality for a science, which he with great truth calls "the most bewitching of all studies," has given some countenance to this idea;[1] and, in general, its justness seems to be admitted by the warmest admirers of mathematics. That it has very little foundation, however, either in theory or in fact, the slightest consideration of the subject is sufficient to evince.

It was already said, that the speculative propositions of mathematics do not relate to *facts;* and that all we are convinced of by any demonstration in the science, is of a necessary connexion subsisting between certain suppositions and certain conclusions. When we find these suppositions actually take place in a particular instance, the demonstration forces us to apply the conclusion. Thus, if I could form a triangle, the three sides of which were accurately mathematical straight

[1] See his *Lectures on the Duties and Qualifications of a Physician*, Lecture III.

lines, I might affirm of this individual figure, that its three angles are equal to two right angles; but, as the imperfection of my senses puts it out of my power to be, in any case, *certain* of the exact correspondence of the diagrams which I delineate, with the definitions given in the elements of Geometry, I never can apply with confidence to a particular figure, a mathematical theorem. On the other hand, it appears from the daily testimony of our senses, that the speculative truths of geometry may be applied to material objects with a degree of accuracy sufficient for the purposes of life; and from such applications of them, advantages of the most important kind have been gained to society. It is only in cases of this description that a mathematical proposition is expressive of a fact; and it must be remarked, that wherever this happens, the assertion partakes more or less of that uncertainty which has been so often complained of in the other sciences. It partakes of that uncertainty which arises from the imperfection of our organs of perception; and it is exposed to all the sceptical cavils which have been suggested with respect to the deceptions of the senses. In some of the practical applications of mathematical truths, the uncertainty is wonderfully increased. In proof of the greater part of astronomical facts, on which we every day reason, we have only the evidence of testimony; and this evidence relates to facts which cannot be ascertained without an uncommon degree of skill and attention. I never heard of any mathematician who was a sceptic in astronomy or physics; and yet, there are few branches of knowledge which lie more open to metaphysical quibbles. On the contrary, do we not daily see men, on the faith of some calculation, founded perhaps on observations made by others, predict with the most perfect confidence, phenomena which are to happen many years afterwards? In this case, there is a vast accumulation of uncertainties, arising from the possibility of mistake in the original observer; from the fallibility of testimony; from our want of evidence with respect to the uniformity of the laws of nature; and from several other sources. Yet a mathematician would treat any man with ridicule, who should so much as suggest a

doubt concerning the probability of a solar or lunar eclipse taking place at the precise instant of time which had been predicted for that event by a skilful astronomer.

It appears, therefore, that in every case in which the mathematician can be said to believe *facts*, in matters connected with his own science, he ackowledges the authenticity of those sources of evidence which are admitted by the philosophers who have turned their attention to other inquiries. A still stronger argument in proof of the same conclusion might be derived from those calculations concerning *probabilities*, on which some of our most eminent mathematicians have exercised their genius. In all these calculations it is manifestly assumed as a principle, that the conduct of a prudent man ought to be guided by a *demonstrated probability*, not less than by a *demonstrated certainty;* and that, to act in opposition to the former species of evidence, would be as irrational and absurd, as to deny the conviction which is necessarily produced by the latter. The only effect which can reasonably be expected from such studies on the mind of the mathematician, is a cautious, and, on the whole, a salutary suspense of judgment on problematical questions, till the evidence on both sides is fully weighed; nor do I see any danger to be apprehended from this quarter, but a disposition in some weak understandings to compute, with arithmetical precision, those probabilities which are to be estimated only by that practical sagacity which is formed in the school of the world. But I must content myself with suggesting these topics as hints for examination.

If the foregoing observations be duly considered, it will not be found easy to conceive in what manner mathematical studies should have any tendency to encourage a sceptical bias concerning the sources of evidence in other sciences. To myself so very different does the truth seem to be, that, in some particular cases of scepticism, I should be disposed to recommend these studies as the most effectual remedy for that weakness of mind in which it originates. When a person reads the history of Natural Philosophy prior to the time of Lord Bacon, and observes the constant succession of chimeras, which, till then,

amused men of science, he is apt to imagine that they had been applying to a study which is placed above the reach of human genius. Similar conclusions are likely to be formed, and with still greater verisimilitude, by those who have confined their attention to the unintelligible controversies of scholastic metaphysicians, or to the vague hypotheses of medical theorists. In mathematics, on the other hand, and in natural philosophy since mathematics was applied to it, we see the noblest instances of the force of the human mind, and of the sublime heights to which it may rise by cultivation. An acquaintance with such sciences naturally leads us to think well of our faculties, and to indulge sanguine expectations concerning the improvement of other parts of knowledge. To this I may add, that, as mathematical and physical truths are perfectly uninteresting in their consequences, the understanding readily yields its assent to the evidence which is presented to it; and in this way may be expected to acquire a habit of trusting to its own conclusions, which will contribute to fortify it against the weaknesses of scepticism, in the more interesting inquiries after moral truth in which it may afterwards engage.

These observations are confirmed by all the opportunities I have had of studying the varieties of intellectual character. In the course of my own experience, I have never met with a *mere mathematician* who was not credulous to a fault;—credulous not only with respect to human testimony, but credulous also in matters of opinion; and prone, on all subjects which he had not carefully studied, to repose too much faith in illustrious and consecrated names. Nor is this wonderful. That propensity to repose unlimited faith in the veracity of other men, which is plainly one of the instinctive principles of our nature, is to be corrected only by actual experience of human falsehood; and, in proportion to the extent of this experience, the degree of our incredulity may be expected to be. In what science, for example, are our reasonings liable to such uncertainty and error as medicine; and accordingly, the old sarcasm against physicians, *ubi tres medici, duo Athei*, though manifestly carried the length of a ludicrous exaggeration, touches,

it must be confessed, on a professional bias, the existence of which it is impossible to deny. But the mathematician is conversant in his own science with truth, and with truth alone; and if he judges of other branches of knowledge by that with which he is daily familiar, can scarcely fail to overrate the authority of those who are understood to have cultivated them with success.[1]

The circumstance which, in my opinion, has given rise to this common charge of scepticism against mathematicians, is an inattention to the distinction between speculative habits of *belief* on moral subjects, and the moral *sensibilities* of the heart. In this last respect, it must be owned, that (although nothing can well be alleged to the prejudice of mathematical studies) little can be advanced in their favour.

In our inquiries into the constitution both of the Material and of the Intellectual worlds, we are constantly presented with instances of *design* which lead up our thoughts to the contem-

[1] We may perhaps connect with the credulity of mathematicians, a feature in their character remarked by Swift in his account of the mathematicians of Laputa;—their eager curiosity after the politics and the news of the day.

"Most of them, and especially those who deal in the astronomical part, have great faith in judicial astrology, although they are ashamed to own it publicly. But what I chiefly admire, and thought altogether unaccountable, was the strong disposition I observed in them towards news and politics; perpetually inquiring into public affairs; giving their judgments in matters of state; and passionately disputing every inch of a party opinion. I have indeed observed the same disposition among most of the mathematicians I have known in Europe, although I could never discover the least analogy between the two sciences."

As it is well known that Dr. Arbuthnot (who was himself a mathematician of some note) contributed largely to this work of Swift's, the foregoing remarks, as well as some others of the same kind which occur in this chapter, are entitled to more attention than if they were sanctioned only by the authority of a man of wit.

On the other hand, it is to be observed, that as there is no study which may be advantageously entered upon with a less stock of preparatory knowledge than mathematics, so there is none in which a greater number of uneducated men have raised themselves, by their own exertions, to distinction and eminence. (See various examples of this in Dr. Hutton's *Mathematical Dictionary*, particularly the very interesting account there given of the justly celebrated Thomas Simpson of Woolwich, and of that learned, laborious, and useful compiler, the late William Emerson.) Many of the intellectual defects which, in such cases, are commonly placed to the account of mathematical studies, ought to be ascribed to the want of a liberal education in early youth.

plation of the Almighty Artist. But in pure or abstract mathematics, the truths we investigate are understood to be necessary and immutable; and, therefore, can have no tendency to awaken those moral sentiments which are so naturally inspired by the order of the universe; excepting, perhaps, in a mind habituated by metaphysical pursuits to a reflex examination of its own reasoning and inventive powers. It must be remembered, at the same time, that this inconvenience of mathematical studies is confined to those who cultivate them exclusively; and that when combined, as they now generally are, with a taste for physical science, they enlarge infinitely our views of the wisdom and power displayed in the universe. The very intimate connexion indeed, which, since the date of the Newtonian philosophy, has existed between the different branches of mathematical and of physical knowledge, renders such a character as that of a *mere mathematician* a very rare and scarcely a possible occurrence; and cannot fail to have contributed powerfully to correct the peculiarities likely to characterize an understanding conversant exclusively with the relations of figures and of abstract quantities. Important advantages may also be expected to result from those habits of metaphysical and of moral speculation which the study both of mathematics and of physics has so strong a tendency to encourage in every inquisitive and cultivated mind. In the present state of science, therefore, mathematical pursuits seem to lead the attention, by a natural process, to the employment of the most effectual remedies against those inconveniences which they appear, on a superficial view, to threaten, and which there is reason to believe they actually produced, in many instances, when education was conducted on a plan less enlightened and comprehensive than what now generally prevails.

Some exceptions to this observation I must, at the same time, acknowledge, are still not unlikely to occur, in cases where the study of Abstract Mathematics has taken a strong hold of the mind, before it was inspired with any taste for the study of Nature; more particularly, where this taste has been confined

to certain branches of natural philosophy, (such as physical astronomy and optics,) which are, in a great measure, inaccessible to those who have not received a regular mathematical education; and which direct the attention much less to experimental principles, than to the necessary relations of quantities and figures. Of those who devote themselves to such researches, by far the greater part have been led to do so, not by any natural relish for physical inquiries, but by a previous passion for geometry, which gradually entices them on to the study of its various applications. Such men are extremely apt to forget, that, although Mathematics is a useful and necessary instrument in Natural Philosophy, the two sciences differ from each other completely in their nature and objects; and, in consequence of overlooking this circumstance, they are apt, from their early habits of study, to aim too much at giving to natural philosophy that completely systematical form which is essential to mathematics from the nature of its *data*, but which never can belong to any science which rests upon facts collected from experience and observation.

In proof of this last remark, it is sufficient to observe, that, in all the different branches of experimental knowledge, how far soever we may carry our simplifications, we must ultimately make the appeal to facts for which we have the evidence of our senses; and, therefore, to diminish the number of such first principles, does not add (as many mathematicians seem to have supposed) in the smallest degree to the logical certainty of the science. On the contrary, such an attempt may frequently lead into error, as well as impair the evidence of our conclusions. Thus, there is a beautiful and striking analogy among some of the laws of motion, as well as among various other general laws of nature; which analogy, however, for anything we know to the contrary, may be the result of the positive appointment of the Creator; and which, at any rate, does not appear so clearly to our reason to arise from any necessary connexion, as to enable us to deduce the one law from the other as a logical consequence. Another remarkable analogy presents itself between the equality of action and re-action in the collision of

bodies, and what obtains in their mutual gravitation, as well as in some other physical phenomena. Here the analogy is so perfect as to render it easy to comprehend all the various facts in one general proposition; nor will I take upon me to affirm, that the different facts may *not* be connected necessarily, as consequences of some one general principle; but, as the evidence of such a connexion does not at least appear satisfactory to every one, it might facilitate the progress of students, and would, at the same time, be fully as unexceptionable in point of sound logic, to establish the fact in particular cases by experiment and observation, and consider *the law of action and re-action* merely as a general rule or theorem obtained by induction.

Numberless instances, too, might be mentioned, in which physico-mathematical writers have been led into illogical and inconclusive reasoning by this desire to mould their doctrines into a geometrical form.[1] It is well known (to take a very obvious example) to be a fundamental principle in mechanics, "That when two heavy bodies counterpoise each other by means of any machine, and are then both put into motion together, the quantities of motion with which the one descends and the other ascends perpendicularly will be equal." This equilibrium bears such a resemblance to the case in which two moving bodies stop each other when they meet together with equal quantities of motion, that many writers have thought that the cause of an equilibrium in the several machines might be immediately assigned by saying, That since one body always loses as much motion as it communicates to another, two heavy bodies counteracting each other must continue at rest, when they are so circumstanced that one cannot descend without causing the other to ascend at the same time, and with the same quantity of motion; for, then, should one of them begin to descend, it must instantly lose its whole motion by communicating it to the other. But this reasoning, however plausible it may seem, is by no means satisfactory; for,

[1] *Elements of the Philosophy of the Human Mind*, vol. ii. p. 134, *et seq.*

(as Dr. Hamilton has justly observed,)[1] when we say that one body *communicates* its motion to another, we must necessarily suppose the motion to exist *first* in the one, and *then* in the other: but, in the present case, where the bodies are so connected that one cannot possibly begin to move before the other, the descending body cannot be said to *communicate* its motion to the other, and thereby make it ascend. And, therefore, (admitting the truth of the general law which obtains in the collision of bodies,) we might suppose that, in the case of a machine, the superior weight of the heavier body would overcome the lighter, and cause it to ascend with the same quantity of motion with which the heavier descends.

As this excessive simplification of our principles in Natural Philosophy impairs, in *some* cases, the evidence of the science, and, in *others*, the accuracy of our reasoning; so, in *all* cases, it has a tendency to withdraw the attention from those pleasing and interesting views to which the contemplation of Nature is calculated to lead every mind of taste and sensibility. In Pure Mathematics, where all the various truths are necessarily connected with each other, (being all necessarily connected with those *hypotheses* which are the principles of the science,) an arrangement is beautiful in proportion as the principles are few; and what we admire perhaps chiefly in the science, is the astonishing variety of consequences which may be demonstrably deduced from so small a number of premises. But, in Natural Philosophy, it is surely more pleasing, as well as much more correct in point of sound logic, to consider the phenomena of the universe as symmetrical parts of one comprehensive and beautiful design, than as the necessary result of an eternal and immutable order; and, in those analogies which take place among different laws, to admire, (not, as in geometry, the systematical concatenation of theorems,) but the unity of contrivance which appears in nature, and that beneficent wisdom which at once delights the imagination with the infinite diversity of its operations, and regulates them by those simple and

[1] See *Philosophical Essays*, by Hugh Hamilton, D.D., Professor of Philosophy in the University of Dublin, p. 135, *et seq.* Third Edition. (London,) 1772.

harmonious laws which accommodate them to the grasp of our limited faculties.

In the foregoing remarks, I have had an eye chiefly to some mathematicians on the Continent, among whom the false logic which I have now been endeavouring to expose has long been gaining ground, and seems to be at present more fashionable than ever. It was, I think, first introduced by Leibnitz, whose mind, powerful and comprehensive as it was, appears from many passages in his works, to have been influenced, in a singular degree, by a disposition to transfer to physical and even to moral subjects, those habits of thinking which he had been led to cultivate by his geometrical studies.[1] The influence of his genius in forming that peculiar taste both in pure and in mixed mathematics which has prevailed in France, as well as in Germany, for a century past, will be found, upon examination, to have been incomparably greater than that of any other individual.

When the mathematician reasons upon subjects unconnected with his favourite studies, he is apt to assume, too confidently, certain *intermediate principles* as the foundation of his arguments. I use this phrase in the sense annexed to it by Locke, in his book on the *Conduct of the Understanding*, from which I shall quote the explanation there given of it, not only as the best comment I can offer upon the expression, but as the view of it which he takes will be sufficient of itself to show why mathematicians should be more liable than the other classes of literary men to this source of sophistical reasoning.

"As an help to this, I think it may be proposed, that, for the saving the long progression of the thoughts to remote and first principles in every case, the mind should provide it several stages; that is to say, *intermediate principles*, which it might have recourse to in the examining those positions that come in its way. These, though they are not self-evident principles, yet, if they have been made out from them by a wary and un-

[1] I am inclined to trace to the same source, the extensive use he has made, in his philosophical inquiries, of *the law of Continuity*, and also of *the principle of the Sufficient Reason*.

questionable deduction, may be depended on as certain and infallible truths, and serve as unquestionable truths to prove other points depending on them, by a nearer and shorter view than remote and general maxims. These may serve as land-marks to show what lies in the direct way of truth, or is quite beside it. And thus mathematicians do, who do not in every new problem, run it back to the first axioms, through all the whole train of intermediate propositions. Certain theorems, that they have settled to themselves upon sure demonstration, serve to resolve to them multitudes of propositions which depend on them, and are as firmly made out from thence, as if the mind went afresh over every link of the whole chain that ties them to first self-evident principles. Only in other sciences great care is to be taken that they establish those intermediate principles with as much caution, exactness, and indifferency, as mathematicians use in settling any of their great theorems. When this is not done, but men take up the principles in this or that science upon credit, inclination, interest, &c., in haste, without due examination, and most unquestionable proof, they lay a trap for themselves, and, as much as in them lies, captivate their understandings to mistake, falsehood, and error."[1]

I cannot help thinking that Locke's recommendation of the use of *intermediate principles* must be received with much greater limitations in the case of all the moral sciences than he seems to have been aware of; otherwise he could not have failed to warn his readers, more explicitly and earnestly than he has done, of the extreme difficulty, if not of the impossibility of establishing, in any of these branches of knowledge, *intermediate principles* at all analogous to the theorems in mathematics. In mechanical philosophy and chemistry, undoubtedly, there are many *intermediate principles* which, in the *present improved state* of these sciences, may be safely assumed as *data*; but how few, comparatively, are the principles to which we are yet entitled to appeal in any of the branches of moral learning; not excepting even the modern,

[1] Locke's *Conduct of the Understanding*, sect. 21.

and sometimes too oracular science of Political Economy! On all such subjects, Mr. Locke's advice will be found much less favourable to the discovery of truth, than to a display of the disputant's readiness and fluency in the conduct of an oral debate, or in the management of a controversial skirmish in a periodical journal. I think I have observed a peculiar proneness in mathematicians, on occasions of this sort, to avail themselves of principles sanctioned by some imposing names, and to avoid all discussions which might lead to an examination of ultimate truths, or involve a rigorous analysis of their ideas. The passage quoted from Locke, without any comment, sufficiently accounts for this bias.

As for the Metaphysician, he is but too apt in an argument (unless he is much upon his guard against the sin which most easily besets him) to run into the opposite extreme, of disputing vexatiously with his adversary every inch of ground; and, after cavilling at principles which have been sanctioned by the universal consent and experience of ages, to dispute those first principles of human knowledge, which, if they were seriously called in question, would involve all the sciences in complete doubt and uncertainty.

Before dismissing this head, it is proper to take notice of an objection which may occur against the consistency of some of the foregoing remarks; although, in reality, the appearances on which it is founded are necessary consequences of the principles I have endeavoured to establish. I have said, that, of all the branches of human knowledge, mathematics is that in which the faculty of imagination is the least exercised, [p. 201, *seq.*] It is, however, a certain fact, that, in mathematicians who have confined their studies to mathematics alone, there has often been observed a proneness to that species of religious enthusiasm in which imagination is the predominant element, and which, like a contagion, is propagated in a crowd. In one of our most celebrated universities, which has long enjoyed the proud distinction of being the principal seat of mathematical learning in this island, I have been assured, that if, at any time, a spirit of fanaticism has infected (as will occasionally happen in all

numerous societies) a few of the unsounder limbs of that learned body, the contagion has invariably spread much more widely among the mathematicians than among the men of erudition. Even the strong head of Waring, undoubtedly one of the ablest analysts that England has produced, was not proof against the malady, and he seems at last (as I was told by the late Dr. Watson, Bishop of Landaff) to have sunk into a deep religious melancholy, approaching to insanity.

When Whitefield first visited Scotland, and produced by his powerful though unpolished eloquence such marvellous effects on the minds of his hearers, Dr. Simson, the celebrated professor of mathematics at Glasgow, had the curiosity to attend one of his sermons in the fields; but could never be persuaded, by all the entreaties of his friends, to hear another. He had probably felt his imagination excited in an unpleasant degree, and with his usual good sense, resolved not to subject himself to the danger of a second experiment. I have observed, too, upon various occasions, the effects of dramatic representations on persons who had spent their lives among calculations and diagrams; and have generally found them much more powerful than upon men devoted to the arts which are addressed to the imagination.

These phenomena tend strongly to confirm a principle which I ventured to state in the concluding chapter of the first volume of these *Elements*, [p. 457]: "That by a frequent and habitual exercise of imagination, we at once cherish its vigour, and bring it more and more under our command. As we can withdraw the attention at pleasure from objects of sense, and transport ourselves into a world of our own, so when we wish to moderate our enthusiasm, we can dismiss the objects of imagination, and return to our ordinary perceptions and occupations. But in a mind to which these intellectual visions are not familiar, and which borrows them completely from the genius of another, imagination, when once excited, becomes perfectly ungovernable, and produces something like a temporary insanity." "Hence," I have added, "the wonderful effects of popular eloquence on the lower orders, effects which

are much more remarkable than what it produces on men of education."

The occasional fits of religious enthusiasm, therefore, to which some mathematicians have been liable, so far from indicating the general predominance of imagination in their intellectual character, are the natural effects of the torpid state in which that faculty is suffered to remain in the course of their habitual studies, and of the uncontrollable ascendant it seldom fails, when strongly excited, to usurp over all the other powers of the understanding, in minds not sufficiently familiarized to its visions and illusions.

Mr. Gray, who appears, from various passages in his works, to have studied the phenomena of the Human Mind much more attentively and successfully than most poets, has, in a passage formerly quoted, struck into a train of thinking, coinciding nearly with the above; and is the only writer in whom I have met with any observations at all approaching to it. "The province of eloquence," he remarks, "is to reign over minds of *slow perception and little imagination;* to set things in lights they never saw them in; to engage their attention by details of circumstances gradually unfolded; to adorn and heighten them with images and colours unknown to them; and to raise and engage their rude passions to the point to which the speaker wishes to bring them."[1]

It is observed by D'Alembert, in his *Elements of Philosophy*, (a work abounding with the most profound and original views,) among other remarks on what he calls the *Esprit Géomètre*, That it is not always united with the *Esprit Métaphysique*. To this observation (which, by the way, corroborates strongly a remark formerly quoted from Descartes [p. 202]) D'Alembert adds, as a still more curious circumstance, that a genius for mathematics, and a turn for games of skill, however nearly they may at first view seem to be allied to each other, are by no means always to be found in the same individual; and that there is even less affinity or analogy between them than is commonly imagined. The subject may appear to some of very trifling moment; but as

[1] Gray's *Letters*, p. 349. [See also above, *Elem.* vol. i. p. 457.—*Ed.*]

D'Alembert has not thought it unworthy of his notice, and as it has led him to an argument which may be extended to some other pursuits of greater importance than those of the gamester, I shall quote it at length. "*A mathematical head*,"[1] says he, "undoubtedly implies a propensity to calculate and to combine; but to combine scrupulously and slowly; examining, one after another, all the parts and aspects of an object, so as to omit no element which ought to enter into the computation; and never venturing upon a new step, till the last has been well secured. A turn for play, on the other hand, is founded on a power of rapid combination, which embraces at a glance, though vaguely, and sometimes incorrectly, a great number of circumstances and conditions, guided more by a certain natural quickness improved by habit, than by a scientific application of general principles. The mathematician, besides, may command as much time as he pleases, for resolving his problems; repose himself after an effort of study, and begin again with renewed vigour; while the player is obliged to resolve his problems on the spur of the occasion, and to bring all his resources to bear on a single instant. It is not, therefore, surprising that a great mathematician should, at a card-table, often sink to the level of mediocrity."*

The fact taken notice of in the foregoing passage, is confirmed by my own observations, as far as they have extended. Of the various mathematicians whom I have happened to be acquainted with, (some of them, certainly, of the first eminence,) I cannot recollect one who was at all distinguished as a player at whist. Many of them, at the same time, were fond of the game, and devoted to it regularly a portion of their leisure hours. But all of them, without exception, were mere

[1] *L'esprit Géomètre.*—I have substituted the word *Mathematician* for *Geometer*; the last of these expressions being always used in our language in that limited sense in which it was employed in the schools of Ancient Greece. In the best French writers, the title of Geometer is very generally given to mere algebraists; and it is plainly in this extensive acceptation that it is employed by D'Alembert in the present instance.

* [*Elémens de Philosophie*, sect. xv.; *Mélanges*, edit. Amst. 1763, tom. iv. p. 180.—*Ed.*]

novices when compared, not only with professional gamesters, but with such men and women as may be selected to form a card-party from any large promiscuous assembly.

The only point in D'Alembert's statement, about which I entertain any doubts, relates to the degree of intellectual exertion which he supposes to be implied in the skill of our common card-players. To myself, I must own, the whole seems to resolve into a ready application of established rules, caught from imitation and practice; while, on the other hand, I am disposed to ascribe the failure of the mathematician to his misplaced confidence in the exercise of his own extemporaneous judgment, in cases where he ought to be guided solely by the approved results of more deliberate calculations.

Something of the same sort may be remarked with respect to every other employment of our faculties in which promptitude of decision is indispensably necessary. Wherever this is the case, a ready application of rules, sanctioned by previous reflection, or by general experience, is far more likely to insure success, than those hasty and dubious conclusions which are formed under the pressure of present exigencies.

Nor are these the only occasions on which an unseasonable exercise of reasoning and invention is attended with inconvenience. The same effects may be expected wherever the superiority of one man above another, depends upon a quickness and facility derived from habitual practice. Whence is it that the mathematician is commonly surpassed in point of rapidity, as an arithmetical calculator, by the illiterate accountant, but because his intellectual activity is adverse to the passive acquisition of a mechanical dexterity? It is owing to a similar cause, that a facility in acquiring languages is seldom combined (at least after years of maturity) with the higher gifts of the mind. The extraordinary promptitude of children in this and other respects, is no doubt owing principally to the susceptibility and retentiveness of memory at that tender age; but a great deal also is, in my opinion, to be ascribed to the weakness of their reasoning powers, and to their complete want of reflection. And hence the importance of communicating to them all

those *accomplishments* which are really useful, before the nobler faculties of the understanding begin to open to the more interesting objects of intellectual curiosity.

SECTION IV.—THE POET.

In entering on this subject it is proper to observe, that the word *Poet* is not here used in that restricted sense in which it is commonly employed, but in its original acceptation of *Maker* or *Creator*. In plainer language, it is used to comprehend all those who devote themselves to the culture of the arts which are addressed to the imagination; and in whose minds, it may be presumed, imagination has acquired a more than ordinary sway over the other powers of the understanding. By using the word with such a latitude, we shall be enabled to generalize those observations which might otherwise seem applicable merely to the different classes of versifiers.[1]

As the chief delight of the poet consists in the exercise of his imagination, he can scarcely fail to acquire an intellectual character, very different from what distinguishes those who cultivate the abstract sciences. These last withdraw a man's thoughts from the world, and turn them to the necessary relations of his general ideas, or to the solitary operations of his own understanding. The culture of imagination does not diminish our interest in human life, but is extremely apt to inspire the mind with false conceptions of it. As this faculty derives its chief gratification from picturing to itself things more perfect than what exist, it has a tendency to exalt our expectations above the level of our present condition; and frequently produces a youth of enthusiastic hope, while it stores up disappointment and disgust for our maturer years. In general,

[1] For this latitude in the use of the word *Poet*, I may plead the example of Bacon and D'Alembert, the former of whom, (*De Aug. Scient.* lib. ii. cap. 1,) comprehends under poetry all fables or fictitious histories, whether in prose or in verse; while the latter includes in it painting, sculpture, architecture, music, and their different divisions.—See the Preliminary Discourse prefixed to the *Encyclopédie*.—[*Mélanges*, tom. i. p. 238, edit. Amst. 1763.]

it is the characteristic of a poetical mind to be sanguine in its prospects of futurity,—a disposition certainly extremely useful when seconded by great activity and industry, but which, when accompanied (as it is too frequently) with indolence, and with an over-weening self-conceit, is the source of numberless misfortunes.

A thoughtlessness and improvidence with respect to the future, and a general imprudence in the conduct of life, has been often laid to the charge of poets. Horace represents them as too much engrossed and intoxicated with their favourite pursuits to think of anything else :—

> "Vatis avarus
> Non temere est animus, versus amat, hoc studet unum;
> Detrimenta, fugas servorum, incendia ridet," &c.[1]

This carelessness about the goods of fortune, is an infirmity very naturally resulting from their studies, and is only to be cured by years and experience; or by a combination (very rare indeed) of poetical genius, with a more than ordinary share of that homely endowment called *common sense*.

Akenside has very beautifully touched upon the history of his own mind in these respects :—

> "The figured brass, the choral song,
> The rescued people's glad applause,
> The listening Senate, and the laws
> Fixed by the counsels of Timoleon's tongue,
> Are scenes too grand for fortune's private ways;
> And though they shine in youth's ingenuous view,
> The sober gainful arts of modern days,
> To such romantic thoughts have bid a long adieu."[2]

A few exceptions to these observations may undoubtedly be mentioned, but they are so very few, as by their singularity to confirm rather than weaken the general fact. In proof of this, we need only appeal to the sad details recorded by Dr. Johnson in his *Lives of the Poets*. It is difficult to guess who the French poets were among Boileau's contemporaries, to whom he alluded in the following admirable verses :—

[1] *Epistle to Augustus*, [*Epist.* II. i. 119.] [2] *Ode to Sleep.* See Note B.

"Travaillez pour la gloire, et qu'un sordide gain
Ne soit jamais l'objet d'un illustre écrivain.
Je sais qu'un noble esprit peut sans honte et sans crime,
Tirer de son travail un tribut légitime.
Mais je ne puis souffrir ces auteurs renommés
Qui, dégoûtés de gloire, et d'argent affamés,
Mettent leur Apollon aux gages d'un libraire,
Et font d'un art divin un métier mercenaire."[1]

From the predominance in the poetical character of the power of imagination, (a faculty which is habitually conversant with creations of its own, more perfect than what the world presents to us,) it may be expected that the *moral taste* of the poet, as well as that species of taste which has the fine arts for its object, should receive a degree of cultivation not to be met with in the common run of mankind. Hence in poetry the natural and pleasing union of those pictures which recall to us the charms of external nature, and that *moral painting* which affects and delights the heart. Hence, too, the origin of an opinion, (which is not altogether without foundation, although it has been often pushed too far,) that there is an inseparable connexion between a good *heart* and a good *taste*.* "Jamais homme ne fut Poëte, ou aima la lecture des Poëtes, qui n'eut le cœur assis en bon lieu."[2] The opinion is, I think, just, if a

[1] Boileau, *L'Art Poëtique*, [Chant. iv. 125.]

* [The whole passage is as follows, *Ed.*:—"Numquam Poesis aut Poetarum amor in abjectum et humilem animum cadit, et omnium maxime divina sequitur ingenia, eorumque perpetuus fere comes.] Jamais," &c.

[2] "Never was there a poet, or a man who delighted in poetry, whose heart did not *lie in the right place*."—*Scaligerana*, edit. of Cologne, 1695, p. 348. [*Prima Scaligerana*, voce *Poesis*.]

Upon this position of [Joseph] Scaliger, the learned Le Clerc has the following very extraordinary remark in his *Parhasiana*:—"Je crois que par *avoir le cœur assis en bon lieu*, il entend être glorieux; car en effet, il n'y a guère de poëte, qui ne le soit un peu."—P. 33, edit. of Amsterdam, 1699. [Tome i. p. 34, edit. seconde, 1701.]

"Avoir le cœur assis en bon lieu," (to have the heart in the right place,) is an old proverbial expression, both in French and English, for *to be possessed of natural good dispositions*. In our language it is not yet become obsolete. It occurs more than once in the novel of *Tremaine*; applied (if I recollect right) to the charming portrait of Jack Careless.

The following passage from the *Guardian* may serve as a comment upon Scaliger's maxim:—

"Were it modest, I should profess myself a great admirer of poesie, but that profession is in effect telling the world, that I have a heart tender and

good heart is understood merely to imply a delicate perception of moral good or evil; but if it be understood to imply, farther, a conformity of our *lives* to the precepts we revere, our daily experience furnishes us with melancholy proofs that the maxim does not hold without many exceptions. Milton has forcibly, though indirectly, conveyed this important lesson:—

> . . . . "Abash'd the devil stood,
> And felt how awful goodness is, and saw
> Virtue in *her* shape how lovely: saw, and pined
> His loss."

In scientific researches, those habits of the mind which lay the foundation of poetical genius may, undoubtedly, be of occasional use, by suggesting *analogies* as interesting subjects of philosophical examination; which analogies, though they often do nothing more than furnish amusement to the fancy, may yet *sometimes* lead to important discoveries. The power of invention, besides, is necessarily connected with the powers of fancy and imagination; at least *these* contribute their share largely in supplying the materials on which invention is to operate. It is scarcely necessary for me to add, of what advantage they are to the theorist, in supplying him with happy and varied illustrations of his hypothesis; an advantage which, it must be owned, has, in the *past* history of science, been more frequently employed in giving plausibility to error, than in illustrating and establishing truth. It is from the seducing influence of these powers that the principal charm of Darwin's *Zoonomia* arises; and hence, too, the strong tendency of this and similar philosophical romances to mislead young and inexperienced understandings.

In this last remark I have partly anticipated what I have next to mention with respect to the influence of poetical habits on the intellectual faculties; I mean their tendency, by cher-

generous, a heart that can swell with the joys or be depressed with the misfortunes of others, nay more, even of imaginary persons; a heart large enough to receive the greatest ideas nature can suggest, and delicate enough to relish the most beautiful; it is desiring mankind to believe that I am capable of entering into all those subtle graces, and all that divine elegance, the enjoyment of which is to be felt only, and not expressed."—*Guardian*, No. 51.

ishing a proneness to analogical combination, to impair that severe and discriminating good sense which can alone guide us infallibly in the search of truth. Not that I would venture, with Mr. Diafoirus, to assume as certain the *converse* of this proposition, and to conclude that, in proportion as imagination is weak, our other faculties must necessarily be strong. "I foresee," said this fond parent, "from the heaviness of my son's imagination, that he will have, in time, an excellent judgment."[1] All that I would be understood to assert is, that a more than ordinary liveliness and warmth of imagination will require, in a greater degree, the discipline of logical precepts and of philosophical habits of thinking, to prevent the possessor from losing his way in his scientific researches, than when this faculty does not possess the same ascendant in the intellectual frame. What Mr. Locke has observed with respect to wit, may, I apprehend, be applied, with scarcely any alteration, to the other elements and accessories of poetical genius. "If, in having our ideas in the memory ready at hand consists quickness of parts, in this of having them unconfused, and being able nicely to distinguish one thing from another, where there is but the least difference, consists, in a great measure, the exactness of judgment and clearness of reason which is to be observed in one man above another."—"And hence, perhaps," continues Mr. Locke, "may be given some reason of that common observation, that men who have a great deal of wit and prompt memories, have not always the clearest judgment or deepest reason."[2]

As an illustration of the tendency of analogies to mislead the judgment, I beg leave to quote a passage from a writer of distinguished talents, [Francis Jeffrey,] whose fertile imagination, by occasionally pressing into his service, in support of an argument, what Pope calls a "*mob of metaphors*," leaves his reader no leisure

[1] "Monsieur, ce n'est pas parceque je suis son père, mais je puis dire que j'ai sujet d'être content de lui. Il n'a jamais eu l'imagination bien vive, ni ce feu d'esprit qu'on remarque dans quelques-uns; mais c'est par là que j'ai toujours bien auguré de sa judiciaire; cette lenteur à comprendre, cette pesanteur d'imagination, est la marque d'un bon jugement à venir."—Moliere, *Le Malade Imaginaire*.

[2] *Essay on the Human Understanding*, book ii. chap. xi. sect. 2.

to examine their justness; and sometimes gives to the visions of his fancy the semblance of a more than common measure of science and profundity. In this case, indeed, I am far from supposing that the author himself is always misled by his own imagination. I believe that more frequently he employs it as a rhetorical engine to subjugate the reason of his readers; and I remark it, therefore, chiefly as an artifice against which his readers would do well to be on their guard. This very amusing style of reasoning was first rendered fashionable by Mr. Burke, and has since been adopted, with equal powers, by the writer to whom I allude. It seems, indeed, happily calculated for imposing on that degree of attention with which reviews are commonly read, and parliamentary speeches listened to. The passage which follows forms part of an argument in support of the pleasing prospects which opened to France at the time of the restoration of the Bourbons. It is but justice to this critic to premise, that his liberal and benevolent wishes for the spread of free institutions over the world, and in particular for a communication to our continental neighbours of such political blessings as we ourselves enjoy, seem to have warmed and exalted his imagination to a more than ordinary degree, at the very interesting crisis when this passage was composed.

"All the periods in which human society and human intellect have ever been known to make great and memorable advances, have followed close upon periods of general agitation and disorder. Men's minds, it would appear, must be deeply and roughly stirred before they become prolific of great conceptions or vigorous resolves; and a vast and alarming fermentation must pervade and agitate the whole mass of society, to inform it with that kindly warmth by which alone the seeds of genius and improvement can be expanded. The fact, at all events, is abundantly certain, and may be accounted for, we conceive, *without mystery and without metaphors.*

"A popular revolution in government or religion, or any thing else that gives rise to general and long-continued contention, naturally produces a prevailing disdain of authority and boldness of thinking in the leaders of the fray, together

with a kindling of the imagination and development of intellect in a great multitude of persons, who in ordinary times would have vegetated stupidly on the places where fortune had fixed them. Power and distinction, and all the higher prizes in the lottery of life, are brought within the reach of a far larger proportion of the community; and that vivifying spirit of ambition, which is the true source of all improvement, instead of burning at a few detached points on the summit of society, now pervades every portion of its frame. Much extravagance, and, in all probability, much guilt and much misery result, in the first instance, from this sudden extrication of talent and enterprise, in places where they can have no legitimate issue or points of application. But the contending elements at last find their spheres and their balance. The disorder ceases, but the activity remains. The multitudes that had been raised into intellectual existence by dangerous passions and crazy illusions, do not all relapse into their original torpor when their passions are allayed and their illusions dispelled. There is a great permanent addition to the power and the enterprise of the community; and the talent and the activity which at first convulsed the state by their unmeasured and misdirected exertions, ultimately bless and adorn it, under a more enlightened and less intemperate guidance. If we may estimate the amount of this ultimate good by that of the disorder which preceded it, we cannot be too sanguine in our calculations of the happiness that awaits the rising generation. The fermentation, it will readily be admitted, has been long and violent enough to extract all the virtue of all the ingredients that have been submitted to its action; and enough of scum has boiled over, and enough of pestilent vapour been exhaled, to afford a reasonable assurance that the *residuum* will be both ample and pure."[1]

Mr. Locke's aversion to similes is well known, and was undoubtedly carried to an extreme. Yet there is much truth and good sense in the following reflections: "They who in their discourse strike the fancy, and take the hearers' conceptions

[1] *Edinburgh Review*, No. xlv. pp. 2, 3.

along with them as fast as their words flow, are the applauded talkers, and go for the only men of clear thoughts. Nothing contributes so much to this as *similes*, whereby men think they themselves understand better, because they are the better understood. But it is one thing to think right, and another thing to know the right way to lay our thoughts before others with advantage and clearness, be they right or wrong. Well chosen similes, metaphors, and allegories, with method and order, do this the best of anything, because, being taken from objects already known, and familiar to the understanding, they are conceived as fast as spoken; and the correspondence being concluded, the thing they are brought to explain and elucidate is thought to be understood too. Thus fancy passes for knowledge, and what is prettily said is mistaken for solid."[1]

Under the same head, it may not be improper to take notice of what I conceive to be a vulgar error with respect to the supposed incompatibility of a lively imagination and a retentive memory. In point of fact, I apprehend it will be found, that of all the various auxiliaries to memory, imagination is the most powerful; and *this*, for the same reason that renders objects of *sight* so efficacious in recalling to us all the ideas or occurrences with which they have been accidentally associated. It is the power of imagination or of conception (for, in our present argument, these words may be used as synonymous) which enables us to place before *the mind's eye* the great outlines of any interesting scene which we have witnessed, and thereby furnishes to our powers of recollection a *natural admiricle*, precisely analogous to the topical memory of the ancient rhetoricians. I do not, at the same time, deny that there is some foundation for the remark so happily expressed in Pope's noted distich,—

> "Where beams of warm imagination play,
> The memory's soft figures melt away."[2]

[1] *Conduct of the Understanding*, sect. 32.

[2] [*Essay on Criticism*, I. 58.] Dr. Warburton's comment on these lines is well worth transcribing. "This observation is collected from an intimate knowledge of Human Nature. . . . As to the decay of Memory by the vigorous exercise of Fancy, the poet himself seems to have intimated the

The fact I apprehend to be this, that the colourings and finishing of Imagination are apt to blend themselves with the recollection of realities; and often impose on the observer himself, as well as on those to whom he communicates his information.[1] This, unquestionably, is unfavourable to correctness of memory; and accordingly it is in the accuracy of their minute details, that men of warm Imaginations are chiefly to be distrusted. In point of *comprehensiveness* or grasp of memory, they may be expected to excel;—and, as far as I can judge from my own observations, they generally do so in a remarkable degree. Nor is this sort of memory, with all its defects, of inconsiderable value to a man of letters; inasmuch as the outline he possesses (general and imperfect as it may be) puts it always in his power, where his knowledge has been derived from books, to revive and correct the fading impres-

cause of it in the epithet he has given to Imagination. For if, according to the Atomic Philosophy, the memory of things be preserved in a chain of ideas, produced by the animal spirits moving in continued trains, the force and the rapidity of the Imagination, perpetually breaking and dissipating the links of this chain, by forming new associations, must necessarily weaken and disorder the recollective faculty."

The Philosophy of the Human Mind must surely have made some progress since Warburton's time, for no commentator on Pope, possessed of Warburton's parts and learning, would now attempt to insult the easy faith of the public with a reflection so completely nonsensical and absurd.

[1] "I have often experienced," Mr. Boswell gravely remarks in his *Tour* with Dr. Johnson through the Hebrides, "that scenes through which a man has passed, *improve by lying in the memory; they grow mellow!*"

To account for this curious mental phenomenon, which he plainly considered as somewhat analogous to the effect of time in improving the quality of wine, he has offered various theories, without, however, once touching upon the real cause—the imperceptible influence of imagination in supplying the decaying impressions of memory. The fact, as he has stated it, was certainly most remarkably exemplified in his own case; for his stories, which I have often listened to with delight, seldom failed to *improve* wonderfully in such keeping as *his* memory afforded. They were much more amusing than even his printed anecdotes; not only from the picturesque style of his conversational, or rather his convivial diction, but perhaps still more from the humorous and somewhat whimsical seriousness of his face and manner. As for those anecdotes which he destined for the public, they were deprived of any chance of this sort of *improvement*, by the scrupulous fidelity with which (probably from a secret distrust of the accuracy of his recollection) he was accustomed to record every conversation which he thought interesting, a few hours after it took place.

sions by recurring to the original authorities. Among my own acquaintance, those whose writings display the most extensive and various knowledge, have been not more remarkable for capaciousness of memory, than for liveliness and warmth of Imagination.

Bayle observes of Plutarch, that he seems to have trusted to his memory too much; and that *his memory was rather comprehensive than faithful.* How far this criticism is just, I do not pretend to say, but the distinction between these two kinds of memory does honour to Bayle, as an observer of the varieties of intellectual character.

I have observed, in the first volume of this Work, that "the perfection of philosophical language, considered either as an instrument of thought, or as a medium of communication with others, consists in the use of expressions, which, from their generality, have no tendency to awaken the powers of conception and imagination; or, in other words, it consists in its approaching, as nearly as possible, in its nature, to the language of Algebra."[1] "How different from this," I have said upon another occasion, "is the aim of poetry! Sometimes to subdue reason herself by her syren song; and in all her higher efforts, to revert to the first impressions, and to the first language of Nature; clothing every idea with a sensible image, and keeping the fancy for ever on the wing."[2]

If there be any truth in these observations, the habits of thinking of the poet must be peculiarly adverse to metaphysical pursuits: And yet some remarkable examples, (it may be objected,) may be quoted in direct opposition to the universality of this conclusion. To speak only of our own times, an appeal may be made to the names of Darwin, of Beattie, and, above all, to that of my late amiable, and most ingenious and accomplished friend, Dr. Brown. To this objection, it must suffice at present to reply, that there is no rule so general as to admit of no exceptions;—and that, in my opinion, even Dr. Brown would have been a still better metaphysician if he had

[1] *Elements of the Philosophy of the Human Mind*, vol. i p. 181.

[2] *Philosophical Essays*, p. 248. 3d edition. [*Infra*, vol. v.]

not been a poet; and a still better poet, if he had not been a metaphysician.[1]

Of Dr. Darwin's metaphysical merits, I have, on other occasions, spoken at sufficient length. And of those of Dr. Beattie (whom I would no more think of comparing with Dr. Brown as a metaphysician, than I would presume to compare Dr. Brown as a poet, with the author of the *Minstrel*) I have said enough, in the third section of my second volume, to convey an idea of the estimate which I have formed. In one particular alone, Dr. Beattie may justly claim the advantage;—that he was never misled in adopting his opinions by the love of singularity; and that, upon all the abstruser and more important questions of metaphysics, he wisely suffered himself to be guided by the opinions of his friends, Reid and Campbell; neither of whom he probably considered as possessing talents equal to his own, but to whose judgment he thought a certain degree of deference due, from the greater deliberation with which they had revolved in their minds the subjects of their common study. His metaphysical speculations, however, cannot fairly be regarded (and far less those of Dr. Darwin) as invalidating the force of the preceding observations.

Considered in its moral effects on the mind, one of the most unfortunate consequences to be apprehended from the cultivation of a poetical talent, is its tendency, by cherishing a puerile and irritable vanity, to weaken the force and to impair the independence of the character. Whoever limits his exertions to the gratification of others, whether by personal exhibition, as in the case of the actor and of the mimic, or by those kinds of literary composition which are calculated for no end but to please or to entertain, renders himself, in some measure, dependent on their caprices and humours. The diversity among men, in their judgments concerning the objects of taste, is incomparably greater than in their speculative conclusions; and accordingly, a mathematician will publish to the world a geometrical demonstration, or a philosopher, a process of abstract reasoning, with a confidence very different from what

[1] See Note C.

a poet would feel, in communicating one of his productions even to an intimate friend. In all the other departments of literature, besides, *to please* is only a secondary object. It is the primary one of poetry. Hence, that timidity of temper, that restless and unmanly desire of praise, and that dependence on the capricious applause of the multitude, which so often detract from the personal dignity of those whose productions do honour to human genius.

In the contrast which I have just hinted at between the opposite effects of mathematical and poetical pursuits, I have the satisfaction of being able to support my own opinion by the authority of D'Alembert, a writer eminently conversant with the objects of taste as well as of science.

The whole train of his reflections on this subject appears to me to be so refined as well as just, that I shall quote the passage at length in a faithful translation.

"The case is the same with the merits of a writer and with those of his works. No other person can judge better of either than himself; for none have had access to a closer or more deliberate examination of them. It is for this reason, that in proportion as the value of a work is intrinsic, and independent of opinion, the less eagerness will the author feel to conciliate the suffrages of the public. Hence that inward satisfaction, so pure and so complete, which the study of geometry yields. The progress which an individual makes in this science, the degree of eminence which he attains in it, all this may be measured with the same rigorous accuracy as the objects about which his thoughts are employed. It is only where we entertain some doubts about the justness of our own standard, that we become anxious to relieve ourselves from our uncertainty, by comparing it with the standard of another. Now, in all matters which fall under the cognizance of taste, this standard is necessarily somewhat variable; depending upon a sort of gross estimate, always a little arbitrary, either in whole or in part; and liable to continual alteration in its dimensions, from negligence, temper, or caprice. In consequence of these circumstances, I have not a doubt, that if men lived separate from

each other, and could in such a situation occupy themselves about anything but self-preservation, they would prefer the study of the exact sciences to the cultivation of the agreeable arts. It is chiefly on account of others, that a man aims at excellence in the latter; it is on his own account that he devotes himself to the former. In a desert island, accordingly, I should think that a poet could scarcely be vain; whereas a geometrician might still enjoy the pride of discovery."[1]

Marmontel, in his fine portrait of the social qualities of D'Alembert, (which I shall not run the risk of injuring by attempting to translate,) ascribes his gaiety in society partly to the nature of his favourite studies. "De cette société, l'homme le plus gai, le plus animé, le plus amusant dans sa gaieté, c'étoit D'Alembert. Après avoir passé sa matinée à chiffrer de l'algèbre, et à résoudre des problêmes de dynamique ou d'astronomie, il sortoit comme un écolier echappé du collège, ne demandant qu'à se réjouir; et par le tour vif et plaisant que prenoit alors cet esprit si lumineux, si profond, si solide, il faisoit oublier en lui le philosophe et le savant, pour n'y plus voir que l'homme aimable. La source de cet enjouement si naturelle étoit une âme pure, libre de passions, contente d'elle-même, et tous les jours en jouissance de quelque vérité nouvelle, qui venoit de récompenser et de couronner son travail; privilège exclusive des sciences exactes, et que nul autre genre d'études ne peut obtenir pleinement."[1]

They who were acquainted with the Literary Society of Edinburgh a few years ago, will recollect another mathematician for whom the foregoing portrait would almost seem to have been drawn.

Wit is commonly regarded as one of the elements, or at least as one of the inseparable concomitants of poetical genius. So intimate, indeed, is the connexion between them supposed to

[1] *Essai sur les Gens de Lettres.* [*Mélanges*, tom. i. p. 334, Ed. Amst. 1763.]
[2] *Mélanges*, &c. vol. ii. p. 110.

be, that by the authors of Queen Anne's reign, *poets* were very generally called *wits*, as if the two words were synonymous. This mode of speaking often occurs in Pope. See, in particular, his *Essay on Criticism*, (*passim.*) See also his imitation of Horace's *Epistle to Augustus*. "But for the *wits* of either Charles's days," &c. In one passage he goes so far as to employ *wit* as synonymous with *poetry* :—

> "The mighty Stagirite first left the shore,
> Spread all his sails, and durst the deeps explore;
> He steer'd securely, and discover'd far,
> Led by the light of the Maeonian star.
> *Poets*, a race long unconfined and free,
> Still fond and proud of savage liberty,
> Receiv'd his laws; and stood convinced 'twas fit,
> Who conquered Nature, should preside o'er *Wit*."[1]

In the first volume of these *Elements* I have endeavoured to trace the affinity between wit and poetical fancy;[2] an affinity so very close, that it is not surprising they should often be combined in the same individual. This combination, however, although it may occur in many, perhaps in most instances, is by no means universal or necessary, but depends on circumstances purely accidental. In the case of a poet, whose early years have been spent in a country solitude, the power of fancy may exist in the greatest perfection without the smallest tendency to wit; which last quality is an intellectual habit, only to be formed amidst the bustle of a crowded and cultivated society. I believe, indeed, that poetical genius is very rarely, if ever, unaccompanied with a greater or less degree of *humour*. At least, I cannot recollect any poet of my acquaintance, who did not possess a considerable share of it, although I have known some poets of great eminence who had no pretensions whatever to wit. Humour, we may also remark, often discovers itself at a very tender age in children, who, if familiarly conversant with good models of propriety, have commonly a very strong sense of the ludicrous. For my own part, I am inclined

[1] *Essay on Criticism*, [645.]

[2] *Elements of the Philosophy of the Human Mind*, vol. i. p. 278, *seq.*

to think that most people, if they were at pains to trace the origin of those ludicrous associations which are uppermost in their minds, would refer many of them to the period of boyhood and even of childhood. I recollect to have heard Dr. Robertson quote an observation of Mr. Burke's with respect to his Irish acquaintance whom he was accustomed to meet with in London, that (however anxious on most occasions to conceal the peculiarities of their national dialect) they never failed, when met together convivially, as soon as their spirits were set afloat with a few glasses of wine, to relapse insensibly into the language of the nursery. Dr. Robertson added, that in his occasional visits to England, he had often made the same remark on his own countrymen. No stronger proof could be produced how intimately our sense of the ludicrous is identified with our earliest associations and impressions.

Nor is it merely in our early years that humour and a sense of the ludicrous appear in full force. They are often among the last qualities that leave us in old age. Mr. Pope has remarked this in a letter to Mr. Blount on the death of Mr. Wycherley. "I cannot help remarking, that sickness, which often destroys both wit and wisdom, yet seldom has power to remove that talent we call *humour*."[1] That the same thing had not escaped the observation of Shakespeare, appears from his description of the death-bed scene of Falstaff:—"Such in those moments as in all the past!"[2]

From these considerations, it would appear, that while wit is a purely *intellectual* habit of association, humour is a habit grafted on the general character, and (if I may use the expression) incorporated with the whole frame and texture of the mind. This appears farther from a remark I have made in a different work, that a talent for humour is almost invariably united with a talent for the pathetic;[3] a remark which might

[1] Pope's *Letter to Edward Blount on the Death of Wycherley.*

[2] Falstaff's jest on the flea which he saw sticking on Bardolph's nose, may be considered as the finishing stroke which Shakespeare gave to this wonderful creation of his genius.

[3] *Philosophical Essays*, p. 600. Third edition. [*Infra*, vol. v.]

be confirmed by a very copious induction of instances, drawn not only from poets[1] and novelists, but from painters, and, perhaps, still more remarkably, from comedians, many of whom have combined the most exquisite taste for the pathetic with the highest comic powers—nay, in some instances, with the broadest and most farcical buffoonery. Nor is this wonderful, inasmuch as both talents are founded on a peculiarly strong sympathy with the feelings of others; and, of course, both imply a peculiarly lively imagination. Hence the delight which writers, who excel in either, take in minute specifications of *picturesque* circumstances, in order to present the ludicrous or the pathetic object to the reader, as nearly as possible in the same point of view in which it was seen or fancied by themselves. A farther proof of the close affinity between these apparently opposite qualities, is afforded by the affinity between those external expressions of the countenance which they have both a tendency to produce. That laughter and crying are separated from each other by a thin partition, is a very old remark; and is every day manifested in the quick transitions from the one to the other in the case of children, and in those persons whose nervous irritability is preternaturally great. In some nervous diseases, too, particularly in paralytic affections, a proneness to shed tears is, I believe, invariably accompanied with a proneness to involuntary laughter on the most trifling occasions. It is not that the morbid state of the body renders the mind *then* more susceptible than when in health, but that the will loses its command over the external expressions of our passions, so as to render these natural signs, whether visible or audible, perceptible to the bystanders, even when the passion is felt in the slightest degree. An old English author, Sir Henry Wotton, seems to have been much

[1] Horace fixes on these two qualities as the characteristical excellencies of Virgil, and seems to consider them as the natural growth of a country education. "The Muses, delighting in rural scenes, have bestowed on Virgil a vein of tenderness and of refined humour."

"Molle atque facetum
Virgilio annuerunt gaudentes rure Camœnæ."—
Horat. *Serm.* lib. i. Sat. 10, [44.]—See Note D.

struck by these remarkable phenomena in the constitution of Human Nature. "Heere I must remember in truth, with much marvelle, a note which I have received from excellent artizans, that though gladnesse and grief be opposite in nature, yet they are such neighbours and confiners in arte, that the least touch of a pencil will translate a crying[1] into a laughing face; which instance, besides divers others, doth often reduce into my memorie, that ingenious speculation of the Cardinal Cusanus, touching the coincidence of extreames."

SECTION V.—THE SEXES.

According to Plato, (whose opinion I state in the clear and concise language of Mr. Gray,) "there is no natural difference between the sexes, but in point of strength. When the entire sexes are compared together, the female is doubtless the inferior; but in individuals, the woman has often the advantage of the man."[2]

In this opinion I have no doubt that Plato is in the right. The intellectual and moral differences between the sexes seem to me to be entirely the result of *education;* using that word in its most extensive sense, to comprehend not merely the instruction received from teachers, but the habits of mind imposed by situation, or by the physical organization of the animal frame.[3]

[1] "The coincidence of extreme affections is represented by Homer in the person of Hector's wife, as painters and poets have always had a kind of congeniality."

Ὡς εἰπὼν ἀλόχοιο φίλης ἐν χερσὶν ἔθηκε
Παῖδ' ἑόν· ἡ δ' ἄρα μιν κηώδει δέξατο κόλπῳ,
Δακρυόεν γελάσασα.—*Ilias*, Z. 482.

"She took her sonne into her arms weepingly laughing."

"*Elements of Architecture*, by Sir Henry Wotton, 1624. Printed in the Third Volume of *Somers' Tracts*, by Sir Walter Scott, p. 622.

[2] Plato, *De Republica*, Book v. [§ 5.] See *Gray's Works*, by Mathias, vol. ii. pp. 437, 438.

[3] Voltaire thinks women upon a level with men in every talent but invention. "On les accorde tous les talens," says Condorcet, "hors celui d'inventer. C'est l'opinion de Voltaire, l'un des hommes qui ont été les plus justes envers elles, et qui les ont le mieux connues. Mais cette

It must be remembered, too, that certain intellectual and moral habits are the natural and necessary consequences of that difference in point of strength which Plato allows to distinguish the Sexes. The form of the male is evidently much the better fitted for bodily exertion, and a less measure of exercise seems to be sufficient to preserve the female in health. Hence the sedentary habits early acquired by the other sex, and that comparative timidity which results from a want of familiarity with those external injuries to which the stronger sex is daily exposed.[1] This timidity, it is to be observed, by no means implies an impatience under present suffering; for the female, though less courageous than the male, is commonly more resigned and patient under severe affliction. The mental constitutions, in this respect, of the sexes are happily adapted to the different provinces allotted to them in life; the male being the natural protector of the female in moments of danger and sudden alarm; the female destined to be his comfort and support in seasons of sorrow, and of protracted suffering.

From the greater delicacy of their frame, and from the numerous ailments connected with their sexual temperament, combined with their constant familiarity with distresses which are not their own, the sympathy of women with the sufferings of others is much more lively, and their promptitude to administer relief, wherever it is possible, is much more eager than in the generality of men. To the truth of this remark, every day's experience bears witness; and from the testimony of travellers, it appears, that the observation extends to women in all the different stages of society. The strong testimony of

opinion," continues Condorcet, with great truth, "me paroit tres incertaine. Si on compare le nombre des femmes qui ont reçu une éducation soignée et suivie à celui des hommes qui ont reçu le même avantage, ou qu'on examine le très-petit nombre d'hommes de génie qui se sont formés d'eux-mêmes, on verra que l'observation constante alléguée en faveur de cette opinion, ne peut être regardée comme une preuve."—*Œuvres Complètes de Condorcet*, tom. xii. pp. 25, 26.

[1] Various other mental peculiarities may be easily traced to other physical circumstances which distinguish their bodily constitutions. On this head the reader will find many curious, and, in my opinion, some just remarks in the Work of Cabanis, entitled *Rapports du Physique et du Morale de l'Homme*, (à Paris, 1805.)

Ledyard (the celebrated pedestrian traveller) on this point, may be regarded as perfectly decisive.[1]

In consequence of the greater nervous irritability of women, their muscular system seems to possess a greater degree of that mobility, by which the principle of sympathetic imitation operates. Hence their proneness to hysteric affections, and to that species of religious enthusiasm which is propagated by contagion. Hence also their tendency to mimicry, and the niceness of their tact with respect to the more delicate features of character. To this nice tact that peculiar quickness and facility of association which I have on a former occasion ascribed to them, cannot fail to contribute powerfully.[2]

In the present state of the civilized world, the scientific or the professional pursuits of young men, establish very early in their understandings the influence of the stricter and more philosophical principles of association; while the minds of young women, like those of well educated *men* of independent fortune, are left much more open to the effects of casual impressions, and of such associations as regulate the train of thought in a mind which has no particular object in view.

To these early habits I think it is owing, that, in general, women are inferior to well educated men in a power of steady and concentrated attention; or in what Newton called a capacity for *patient thought*. An additional disqualification for abstruse researches arises from their inaptitude to employ skilfully language as an instrument of thought; an art to

[1] Though this has been already quoted in so many publications, that it must of course be known to most of my readers, yet I cannot deny myself the pleasure of giving it a place in a note.

"To a woman, whether civilized or savage, I never addressed myself in the language of decency and friendship, without receiving a decent and friendly answer. With men it has often been otherwise.

"In wandering over the barren plains of Denmark, through Sweden, Lapland, Finland, Russia, and the wide-spread regions of the Tartar,—if hungry, dry, cold, wet, or sick, the women have ever been friendly to me, and uniformly so: and to add to this virtue, these actions have been performed in so free and kind a manner, that if I was thirsty, I drank the sweetest draught, and if hungry, I ate the coarse meal with a double relish."

[2] *Elements*, vol. i. p. 265. See also the note in pages 256, 257.

which the scientific studies of young men must necessarily train them in a greater or less degree. Will it be thought a fanciful idea if I farther suggest, that in this part of the world, the grammatical education which boys receive while learning Latin, by teaching them experimentally the aid which the memory derives from general rules, prepares them for acquiring habits of generalization when they afterwards enter on their philosophical studies?[1] To this I am disposed to ascribe, in a great measure, the little curiosity which girls commonly discover about the *causes* of physical phenomena; for what is vulgarly called a knowledge of *causes* (as I have frequently remarked in these volumes) is nothing else than a knowledge of general rules. Many splendid exceptions, however, occur to these remarks; insomuch that it is impossible to name a

[1] Latin, I observe with pleasure, is now beginning to enter more and more into the system of female education; and nothing could have so long delayed so obvious an improvement, but those exceptionable passages with which the Latin classics abound, and from which it is devoutly to be wished that the more common school-books were carefully purged, in editions fitted for the perusal of youth of both sexes.

In consequence, however, of the method which has been hitherto followed in the classical education of females, it is not likely to have the same tendency to prepare their minds for scientific pursuits with the grammatical discipline to which schoolboys are subjected; for, as far as I have had access to know, girls are generally taught Latin on the plan recommended by Marsais in the French *Encyclopédie*. In this their instructors, in my opinion, act judiciously; for although I should be sorry to see any such innovation introduced into our grammar schools, I think that any plan which facilitates the acquisition of the language is desirable for the other sex; few of whom, it may be presumed, would aim at a more critical acquaintance with grammatical *minutiæ* than is necessary to enable them to relish the beauties of classical authors. The mild Melanchthon would, I am sure, have been disposed to relax, in favour of *their* teachers, the severity of those penal statutes with which he wished to repress the heresy of certain schoolmasters, who in his times were beginning to depart from the orthodox methods of their predecessors.

"Pessimè de *pueris* merentur Præceptores, qui aut regulas nullas tradunt, aut certè statim abjiciunt, et magnificè promittunt, fore, ut usu loquendi discantur Constructiones. Nam illi qui non norunt regulam, etiamsi legunt exempla in auctoribus linguæ, tamen loqui non satis audent, quia non habent certam rationem, ad quam dirigant compositionem verborum. *Quare publicè debebant in tales præceptores pœnæ constitui, qui præcepta fastidiunt.* Omninò enim danda est opera, ut tamdiu in ipsa arte detineantur adolescentes, donec perfecti grammatici, donec architecti sermonis, et absoluti artifices evâserint." [Oratiò *De Schol. instit.*]

branch of knowledge in which there have not been female authors of the first eminence. But that these examples are comparatively rare, may be inferred from this, that good sense and good taste invariably dispose women who have made extraordinary attainments in any of the abstract sciences, to draw a veil over them to common observers, as not according well with the more appropriate accomplishments of their sex.

A taste for the Philosophy of Mind is more peculiarly rare among women; it is even rarer than a taste for Pure Mathematics. Nor is this wonderful; for as their early habits invite their attention constantly to sensible objects, their minds become singularly alive to things external, and of consequence more liable to those habits of inattention to the phenomena of the internal world, which, while they damp their curiosity with respect to these phenomena, prevent the cultivation of that power of *reflection*, without which it is impossible to study them with success. All this must render that influence of casual associations upon their judgment, which was already remarked, an evil (so far as it is an evil) not likely to be remedied, excepting by some extraordinary concurrence of circumstances.[1]

[1] The works of Madame de Staël undoubtedly abound in observations on *moral* subjects which bear marks of profound *reflection* on the operations and feelings of her own mind; and in Miss Edgeworth's writings on education are many original suggestions with respect to the culture of the understanding, which discover a turn of mind very happily adapted to these abstract pursuits. It has not, however, been, on the whole, unfortunate for the world that the genius of this lady was early diverted from such unattractive speculations, to that more brilliant career of literature which she has pursued with so unrivalled a reputation. To these two illustrious names, I cannot recollect a third which deserves to be added as an exception to the above position.

The reflections of a very nice observer of the characteristical differences of the sexes coincide nearly with some of the foregoing remarks.

"La recherche des vérités abstraites et spéculatives, des principes, des axiomes dans les sciences, tout ce qui tend à généraliser les idées, n'est point du ressort des femmes: leurs études doivent se rapporter toutes à la pratique; c'est à elles à faire l'application des principes que l'homme a trouvés, et c'est à elles de faire les observations qui mènent l'homme à l'établissement des principes. Toutes les réflexions des femmes, en ce qui ne tient pas immédiatement à leurs devoirs, doivent ten-

To the influence, however, of these casual associations upon their ordinary train of thought, may be ascribed the superiority of the fair sex in their powers of conversation, in epistolary writing, and in those unstudied graces which distinguish the style of their compositions from that of the retired student. Madame de Sévigné, when she wrote the following sentence, had a clear perception of the circumstances to which she was indebted for the singular ease and felicity of her transitions. "Il faut un peu entre bons amis laisser trotter les plumes comme elles veulent, la mienne a toujours la bride sur le cou."

But it is not to this cause alone that Madame de Sévigné owes the pre-eminent rank which she occupies, in the judgment of her own countrymen, among their epistolary writers. Much must be ascribed also to another talent, strikingly characteristical of her sex and of her courtly habits, the nice and unerring discrimination with which she scatters over her style so lavishly, and, to all appearance, so negligently, those idiomatical phrases which are peculiar to the French tongue: without ever lighting on any of those modes of speaking which have been contaminated by the lips of the vulgar.[1] Of the horror with

dre à l'étude des hommes ou aux connoissances agréables qui n'ont que le goût pour objet; car quant aux ouvrages de génie ils passent leur portée; elles n'ont pas, non plus, assez de justesse et d'attention pour réussir aux sciences exactes; et quant aux connoissances physiques, c'est à celui des deux qui est le plus agissant, le plus allant, qui voit le plus d'objets; c'est à celui qui a le plus de force et qui l'exerce davantage, à juger des rapports des êtres sensibles et des lois de la nature." . . . . "L'Art de penser n'est pas étranger aux femmes, mais elles ne doivent faire qu'effleurer les sciences de raisonnement. Sophie conçoit et ne retient pas grand chose. Ses plus grand progrès sont dans la morale et les choses de goût; pour la physique, elle n'en retient que quelque idée des lois générales et du système du monde."—[Rousseau,] *Emile.*

[1] For this reason, I doubt much whether the rapture with which Englishmen often speak of the style of Madame de Sévigné be not in some measure affected. Such at least was the opinion of M. Suard, a perfect judge, and one of the very few to whom we might apply the words of Horace, *Docte sermones utriusque linguæ.*

"Les Etrangers ne peuvent acquérir une parfaite connoissance de ces Gallicismes que par une étude approfondie de la langue, et par une longue habitude de vivre avec des personnes qui parlent bien. *Le grand monde a donné cours à ces acceptions, et c'est à l'heureux emploi qu'on en fait qu'on reconnoît les personnes qui y ont vécu.* Madame de Sévigné fourmille de ces Gallicismes qui donnent à ses lettres une grâce inexprimable."—*Essai sur les Gallicismes.*

which the somewhat morbid sensitiveness of her taste regarded all common and proverbial expressions, no description can convey so perfect an idea as an anecdote told with singular liveliness by herself. "Un Président m'est venu voir, avec qui j'ai une affaire que je vais essayer de finir, pour avancer mon retour autant que je le puis. Ce Président avoit avec lui un fils de sa femme, qui a vingt ans, et que je trouvai, sans exception, de la plus agréable et de la plus jolie figure que j'aie jamais vue. J'allais dire que je l'avois vu à cinq ou six ans, et que j'admirais, comme M. de Montbason, qu'on pût croître en si peu de tems. Sur cela il sort une voix terrible de ce joli visage, qui nous plante au nez, d'un air ridicule, que *mauvaise herbe croit toujours;* voilà qui fut fait, je lui trouvai des cornes. S'il m'eût donné un coup de massue sur la tête, il ne m'auroit pas plus affligée. Je jurai de ne me plus fier aux physionomies."*

The foregoing passage, with which it is impossible not to be amused, in a letter from a lady bred at the Court of Louis XIV., would in this country have appeared too extravagant for the pen even of Horace Walpole.

The characteristical taste of Madame de Sévigné (exquisite undoubtedly of its own kind) was chiefly that sort of *conventional* taste on which I have, on other occasions, offered various remarks.[1] It is that sort of taste, founded on a facility of association, which the other sex seem to me to have a peculiar aptitude to acquire; and which, if I am not deceived, is exemplified still more strongly in French than in English ladies. From this, too, may be traced, as I have elsewhere observed, some of the most remarkable features, both of their intellectual and moral character. I have mentioned particularly the facility with which they contract and lose habits, and accommodate their minds to new situations; to which I have added their proneness to that species of superstition, which is founded on accidental combinations of circumstances.[2] I might also have

* [*Lettres.*]

[1] *Elements*, vol. i. pp. 325, *seq.* *Philosophical Essays*, pp. 490, 491. Second edition. [*Works*, vol. v.]

[2] *Elements*, vol. i. pp. 265, *seq.*

added the ease and the perfection with which they acquire foreign languages by the ear. I recollect to have heard a French gentleman (a person eminently skilled in his own language) remark, that he had never met with an Englishman who spoke French with more purity and correctness than the late Mr. Fox; but that he knew several English ladies who spoke it better.

In consequence of these distinguishing peculiarities of the female mind, we may remark, that women in general possess a greater *docility* or aptitude to learn than men; a docility much aided by that easy faith in the infallibility of their instructors, which they are led to repose by the deference they are early taught to pay to superior knowledge, and which, it must be owned, too often serves to mislead their confidence. To this easy faith, however, they are not a little indebted for that apparent quickness, by which they are so much distinguished, not only in acquiring languages, but all the common branches of education.

SECTION VI.—CONCLUSION OF CHAPTER FIRST.

Speculations similar to those which have formed the chief subjects of this chapter, might be extended to all the different pursuits of Man both scientific and active; but enough has already been said to convey a general idea of my views with respect to this branch of the Philosophy of the Human Mind, and of some of the particular purposes to which I conceive it to be subservient. Among these, the first place is due to its obvious tendency (by guarding the student against confined scientific and literary pursuits) to correct those biases and erroneous habits of thinking that Bacon classes under the title of *Idola specus*.[1] They may also be useful in pointing out the proper remedies to have recourse to, against the various intellectual defects and disorders, whether natural or acquired, to which the human mind is liable. "There is no stand or

[1] See Bacon's Works, *De Augment. Scientiar.* lib. v. cap. iv.

impediment," says Bacon, "in the wit, but may be wrought out by fit studies, like as diseases of the body may have appropriated exercises: bowling is good for the stone and reins; shooting for the lungs and breast; gentle walking for the stomach; riding for the head, and the like; so if a man's wit be wandering, let him study the mathematics, for in demonstrations, if his wit be called away never so little, he must begin again; if his wit be not apt to distinguish or find differences, let him study the schoolmen; if he be not apt to beat over matters, and to call upon one thing to prove and illustrate another, let him study the lawyer's cases: so every defect of the mind may have a special receipt."[1]

In the first volume of these *Elements*, I have touched on a subject nearly connected with the same speculations. "In whatever way," I have observed, "we choose to account for it, whether by original organization, or by the operation of moral causes in very early infancy, no fact can be more undeniable than that there are important differences discernible in the minds of children, previous to that period at which, in general, their intellectual education commences. There is, too, a certain hereditary character (whether resulting from physical constitution, or caught from imitation and the influence of situation) which appears remarkably in particular families. One race, for a succession of generations, is distinguished by a genius for the abstract sciences, while it is deficient in vivacity, in imagination, and in taste: another is no less distinguished for wit, and gaiety, and fancy; while it appears incapable of patient attention, or of profound research. The system of education, which is proper to be adopted in particular cases, ought, undoubtedly, to have some reference to these circumstances; and to be calculated, as much as possible, to develop and to cherish those intellectual and active principles, in which a natural deficiency is most to be apprehended. Montesquieu, and other speculative politicians, have insisted much on the reference which education and laws should have to climate. I shall not take upon me to say, how far their

[1] Bacon's *Essays; Of Studies.*

conclusions on this subject are just; but I am fully persuaded that there is a foundation in philosophy and good sense for accommodating, at a very early period of life, the education of individuals to those particular turns of mind, to which, from hereditary propensities, or from moral situation, they may be presumed to have a natural tendency."[1]

To these observations, I think it of importance to add, that in those parts of Europe where persons of high rank are accustomed to intermarry exclusively with their own order, the hereditary peculiarities or *points* (if I may be allowed the expression) of families may be expected to display themselves much more remarkably than in other countries. Something analogous to what is practised in some parts of England, for improving the breeds of the lower animals,[2] there takes place in the human species; and the consequences are strikingly similar. Certain peculiarities both of body and of mind, become characteristical of particular families, and are apt to be associated, in the fancy of the multitude, with ideas of nobility and of ancient race; but in proportion as these peculiarities are prominent, it is invariably found, that *the man* degenerates from the perfection of his intellectual and moral, as well as of his physical nature. The superiority of character which raises the English nobility so far above the level of their Continental neighbours, is certainly owing to the frequent alliances among different ranks and castes of the people. Of the result in this instance, the greater part is probably to be ascribed to *moral* causes,—to the *crossing*, if I may say so, of different accomplishments and of different prejudices; but who will assert the probability that the human race is altogether exempted from those *physical* laws to which other animals are subjected in so remarkable a degree?

Among the *Cretins* of Chamouny, it has been remarked, by a very intelligent and accurate observer, that, notwithstanding the low state of their intellectual powers in general, instances often occur of individuals distinguished by some extraordinary

[1] [*Elements, &c.* vol. i. p. 62.]

[2] See Mr. Marshall's *Rural Economy of the Midland Counties.* Lond. 1790.

gifts of nature, such as a strong and almost preternatural turn for mechanism, for music, for drawing, and the other imitative arts.[1] This remark is so agreeable to the analogy of my own experience, so far as it has reached, that I have long been disposed to consider any violent and exclusive bias of this sort, when manifested in very early life, as a most unfavourable omen of the future vigour and comprehension of the understanding.

While, however, we are at pains to guard against the effects of circumscribed scientific and literary pursuits, we ought to be careful not to run into the opposite error. This caution I conceive to be particularly necessary in the present times, in which there is a manifest bias in the rising generation to consider knowledge rather in the light of an accomplishment, subservient to conversation, than of a solid acquisition, convertible to purposes of real and permanent utility. On this subject, I borrow from the *Edinburgh Review* a lively description of the accomplishments supposed "now-a-days to be essential to enable a man to pass current in the informed circles of society;" a description which, I am afraid, is but too faithful a picture of the present state of our manners.

"In the informed circles of society, a man can scarcely pass current without knowing something of political economy, chemistry, mineralogy, geology, and etymology,—having a small notion of painting, sculpture, and architecture,—with some sort of taste for the picturesque, and a smattering of German and Spanish literature, and even some idea of Indian, Sanscrit, and Chinese learning and history,—over and above some little knowledge of trade and agriculture,—with a reasonable acquaintance with what is called the philosophy of politics, and a far more extensive knowledge of existing parties, factions, and eminent individuals, both literary and political, at home and abroad, than ever were required in an earlier period of society."[2]

[1] *Traité du Goître et du Crétinisme*, par F. E. Foderé, Ancien Médecin des Hospitaux Civiles et Militaires. A Paris, an VIII.

[2] *Edinburgh Review*, vol. xvii. p. 168. [Jeffrey's Review of the *Philosophical Essays*.—*Ed.*]

The effects likely to be produced on the mind by this passion for universal knowledge, are well described by Seneca. "Plus scire velle quam sit satis intemperantiæ genus est. Quid, quod ista liberalium artium *consectatio*, molestos, verbosos, intempestivos, sibi placentes facit, et ideo non discentes necessaria, quia supervacua didicerunt."[1]

The following remarks of Diderot, on the same subject, are not unworthy of attention:—"Une grand mémoire suppose une grande facilité d'avoir à la fois ou rapidement plusieurs idées différentes; et cette facilité nuit à la comparaison tranquille d'un petit nombre d'idées que l'esprit doit, pour ainsi dire, envisager fixément. Pour moi, je pense que c'est par cette raison, que le jugement et la grande mémoire vont si rarement ensemble. Une tête meublée d'un grand nombre de choses disparates, est assez semblable à une bibliothèque de volumes dépareillés. C'est une de ces compilations Germaniques, hérissées sans raison et sans goût, d'Hébreu, d'Arabique, de Grec, et de Latin, qui sont déjà fort grosses, qui grossissent encore, qui grossiront toujours, et qui n'en seront que plus mauvaises. C'est un de ces magazins remplis d'analyses et de jugemens d'ouvrages que l'analyste n'a point entendus; magazins de marchandises mêlées, dont il n'y a proprement que le bordereau qui lui appartienne: c'est un commentaire où l'on rencontre souvent ce qu'on ne cherche point; rarement ce qu'on cherche; et presque toujours les choses dont on a besoin, égarées dans la foule d'inutilités."—*Lettre sur les Sourds et Muets.*

[1] *Epist.* 88. Lagrange, in his translation of this passage, has preserved all the force and conciseness of the original. "Il y a une sorte d'intempérance à vouloir savoir plus que le besoin exige. Ajoutez que les vaines recherches rendent les savants insupportables, bavards, importuns, suffisants, et peu occupés d'apprendre le nécessaire quand ils sont pourvus du superflu."

CHAPTER II.

COMPARISON BETWEEN THE FACULTIES OF MAN AND THOSE OF THE LOWER ANIMALS.

"Les actions des bêtes sont peut-être un des plus profonds abimes sur quoi notre raison se puisse exercer; et je suis surpris que si peu de gens s'en apperçoivent."—Bayle, *Dict.* Art. *Barbe.* Note C.[1]

SECTION I.

THAT the brutes are under the more immediate guidance of Nature, while man is left, in a great degree, to regulate his own destiny by the exercise of his reason, is a fact too obvious to stand in need of illustration. In what manner, indeed, Nature operates in this instance, we are wholly ignorant; but nothing can be more certain than this, that it is not by a deliberate choice, analogous to what we experience in ourselves, that the lower animals are determined to the pursuit of particular ends, nor by any process analogous to our reason that they combine means in order to attain them.

To that unknown, but obviously intelligent cause which guides the operations of the brutes, we give the name of *Instinct*, without presuming to decide the question *where* this

[1] After prefixing to the following chapter the above motto from Bayle, which expresses my own deliberate and decided opinion, it will not be supposed by my readers that I flatter myself with the hope of being able to communicate any new and important lights on the subject to which it relates. If I shall be able to correct some of the rash and extravagant conclusions still current among contemporary writers, and to exemplify what I conceive to be a more sober and rational mode of philosophizing, it is all that I aspire to.

intelligence resides; much in the same manner in which we give the name of the letters x and y to the unknown quantities in an algebraical problem. The circumstances by which it is distinguished from *Reason* are so remarkable, and so manifest to the most careless observer, as to preclude, among candid inquirers, the possibility of dispute. Of these circumstances the two following seem to be the most important:—1*st*, The uniformity with which it proceeds in all individuals of the same species; and, 2*d*, The unerring certainty with which it performs its office prior to all experience. In both these respects the operations of *reason* or of *art*, properly so called, seem to be essentially different from anything else that is known among animated natures; inasmuch as no two individuals of our species were ever observed to employ exactly the same combinations of means (at least where the means were at all complicated) for the attainment of the same ends, and as the capacity of reason, destitute of the aid of experience, is altogether a barren and unavailing principle.

Agreeably to this last observation, *art* is defined by Lord Bacon very justly, though somewhat diffusely, to be "a proper disposal of the things of nature by *human thought and experience*, so as to make them answer the designs and uses of mankind." It may be defined more concisely to be the adjustment of *means* to accomplish a desired *end*. According to this idea of art, it is necessarily the result of reason and invention; and it also necessarily presupposes experience and observation,—without which it is impossible for the greatest ingenuity to form one single conclusion concerning the order of the universe, or the means to be employed for producing any conceivable effect, whether physical or moral.

In endeavouring thus to draw a line of distinction between the operations of Reason and those of Instinct, I would not be understood to refer all the actions of Man to the one principle, and all those of the Brutes to the other. On the contrary, it will afterwards appear that the instincts of the brutes are susceptible of important modifications from the influence of external circumstances, and the accidental experience of the

individual animal. And, on the other hand, nothing can be more manifest, than that in our species there are many natural propensities which seem to be perfectly analogous to instinct, in their laws and in their origin. Thus an infant, the moment it is brought into the world, performs, with the most perfect success, the function of respiration; a function which requires the alternate contraction and relaxation of certain muscles in a regular order and succession. The infant has certainly no idea that breathing is necessary to life, nor any knowledge of the means by which that end is accomplished.

It is in a similar way that a new born child performs the operations of suction and swallowing. Anatomists describe about thirty pairs of muscles that must be employed in every draught.[1] Who puts these muscles into action, and regulates the order in which they are exerted? We may venture to say with confidence, that in so far as this operation indicates design and reason, they are not the design and reason of the infant.

If these facts are attentively considered, we may be more easily disposed to admit that instinctive proneness to the interpretation of natural signs, and that instinctive facility in comprehending their meaning, which I formerly ventured to ascribe to our species. Some modern philosophers have attempted to resolve the whole of this process into experience and observation; and to maintain that we *learn* to interpret natural signs exactly in the same manner in which we learn the meaning of conventional speech. To this doctrine I am not disposed in the least to object, so far as it rests on *facts*. On the contrary, it appears to me reasonable and philosophical to push it as far as these authorize us to go; for numberless examples show that Nature has done no more for man than was necessary for his preservation, leaving him to make many acquisitions for himself, which she has imparted immediately to the brutes.[2]

[1] Reid's *Essays on the Active Powers of Man*, p. 103, 4to edition.

[2] A remarkable and indisputable instance of this occurs in that instinctive perception of distance from the eye, which in many tribes of the brutes is connate with their birth, compared with

My own idea is, as I have said on a different occasion, that both instinct and experience are here concerned, and that the share which belongs to each in producing the result can be ascertained by an appeal to facts alone. To object to this con-

what is known to take place in our own species. The very ingenious and acute Dr. Campbell, indeed, was led by analogy to think it probable, that their perceptions in this case were similar to our own. "There is some ground to think," he observes, "from the exact analogy which the organs of brutes bear to ours, that the discovery of distance from the eye is attained by them in the same manner as by us. *As to this, however, I will not be positive.*"—*Philosophy of Rhetoric*, vol. i. p. 135.

In the Essay upon the *External Senses*, published in the posthumous *Essays* of Mr. Adam Smith, it is shown, in a most satisfactory manner, how completely the argument from analogy fails in this instance.

"That, antecedent to all experience, the young of at least the greater part of animals possess some instinctive perception of this kind, seems abundantly evident. The hen never feeds her young by dropping the food into their bills, as the linnet and the thrush feed theirs. Almost as soon as her chickens are hatched, she does not feed them, but carries them to the field to feed, where they walk about at their ease, it would seem, and appear to have the most distinct perception of all the tangible objects which surround them. We may often see them, accordingly, by the straightest road, run to and pick up any little grains which she shows them, even at the distance of several yards; and they no sooner come into the light than they seem to understand the language of vision as well as they ever do afterwards. The young of the partridge and of the grouse seem to have, at the same early period, the most distinct perceptions of the same kind. The young partridge, almost as soon as it comes from the shell, runs about among long grass and corn; the young grouse among long heath, and would both most essentially hurt themselves if they had not the most acute, as well as distinct perception of the tangible objects which not only surround them, but press upon them on all sides. This is the case, too, with the young of the goose, of the duck, and, as far as I have been able to observe, with those of at least the greater part of the birds which make their nests upon the ground; with the greater part of those which are ranked by Linnæus in the orders of the hen and the goose, and of many of those long shanked and wading birds which he places in the order that he distinguishes by the name of *Grallæ*." . . . .

"The young of several sorts of quadrupeds seem, like those of the greater part of birds which make their nests upon the ground, to enjoy, as soon as they come into the world, the faculty of seeing as completely as they ever do afterwards. The day, or the day after they are dropt, the calf follows the cow, and the foal the mare, to the field; and though from timidity they seldom remove far from the mother, yet they seem to walk about at their ease; which they could not do unless they could distinguish, with some degree of precision, the shape and proportion of the tangible objects which each visible one represents."—Smith's *Posthumous Essays*, pp. 233-235.

With these remarks of Mr. Smith's, the ingenious observations upon *instinct*, in a late publication of M. Fred. Cuvier, coincide exactly.—See Note E.

clusion as unphilosophical, merely because it refers the phenomenon *in part* to a cause of which we know nothing but from its effects, is to betray a presumptuous confidence in the powers of human reason, which accords but ill with the narrow limits assigned to it in such abstruse researches. Abstracting from this particular class of phenomena, numberless other operations of our species are no less wonderful; or, granting that man learns everything by experience, what shall we say to those operations of the brutes which are uniform in every individual of the same tribe, and as perfect at first as after a thousand trials!

But why should we have recourse in this argument to the instincts of the brutes, or to those operations of our own species which passed in a period of which we have no recollection? Can any thing, in what is commonly called *instinct*, be more mysterious than the means by which the voluntary motions of the body are accomplished? I *will* to move my hand or my foot, and the end is instantly brought about. I learn from physiologists, that, for this purpose, certain muscles must be exerted, and that the contraction of these muscles is produced by the influence of the nerves.[1] But, in performing the action,

[1] Not many years ago, physiologists professed to know a great deal more on this subject. The following is an extract from a very learned and ingenious author who wrote in 1775; and yet already it is impossible to read it without a smile at the confident and oracular tone in which the wildest dreams of imagination are imposed on the reader as undoubted articles of medical faith.—For selecting this quotation from a French work, I have no other reason than that the book happens to be now lying before me. Many passages to the same purpose, I have no doubt, are to be found in English publications of as recent a date.

"Mais comment est ce que notre volonté tire tous ces nerfs? Par un agent le plus simple en apparence, le moins matériel qui ce puisse, et qui tient un milieu en quelque sorte entre le corps et l'esprit; par un liquide dont les nerfs sont remplis, et qu'on appelle *esprits animaux*. On doit les considérer comme une liqueur éthérée trés-légère, composée de molécules que leur rapport (ou leur affinité) rassemble, en sorte qu'ils s'attirent mutuellement comme l'aimant attire le fer; et si déliés, que les microscopes les meilleurs n'ont pu encore les rendre sensibles. C'est par une suite de ces esprits animaux que les nerfs sont le siège du sentiment et du mouvement, comme nous l'avons déjà dit.

"Ces esprits animaux ne sont pas seulement contenus dans les nerfs; ils occupent aussi les cavités du cerveau, de la moëlle de l'épine, et des fibres musculeuses. Ils sont certainement élastiques, de l'aveu des meilleurs phy-

I think neither of nerves nor muscles. I only think of the *end;* and the machinery necessary for accomplishing it is immediately arranged and exerted, without any co-operation on my part of which I am conscious.

The only difference between these voluntary motions and the operations of instinct, is, that in the former we *will* the end, and are ignorant of the means employed in its accomplishment. In the latter, we have no conception either of means or end.[1]

The disposition which some late authors have shown to explain away the operations of instinct in man, can be accounted for only by their wish to weaken the foundations of natural religion. To speak of instincts and of original propensities, we have been told, is the language of *Mysticism.* "It is, in truth, the language of genuine science, which contents itself with a statement and generalization of facts, and stops short as soon as it is arrived at the limits prescribed to human curiosity. The charge of Mysticism properly falls on those who, in attempting to conceal their ignorance from themselves or from others by means of theoretical expressions, *darken* the study of nature by *words without knowledge.*[2]

siciens, susceptibles par conséquent de se raréfier et d'occuper une place beaucoup plus considérable. Mais lorsque les esprits animaux contenus dans les nerfs viennent à se gonfler, il faut nécessairement que les nerfs s'élargissent; par conséquent, qu'ils se raccourcissent. En se raccourcissant, ils soulèvent donc le diaphragme et les autres muscles auxquels ils sont attachés; ceux-ci soulèvent la poitrine, et delà le jeu de la respiration entière occasionné par la volonté.

"On peut voir de plus grands détails sur ces *esprits animaux*, sur leur existence, leurs diverses espèces, et sur la manière dont ils sont mus, dans les *Essais Anatomiques* d'un Homme célèbre,* digne de la place à laquelle il vient d'être élevé."—*Monde Primitif*, par M. Court de Gebelin, tom. iii. pp. 78, 79.

[1] Sir Isaac Newton appears plainly to have been struck with the affinity between these two classes of phenomena, when he combined them together as subjects of the same query. "How do the motions of the body follow from the will; and whence is the instinct in animals?"—*Optics*, book iii.

[2] What Sir Isaac Newton has said in justification of the word *gravity*, as employed in his Philosophy, against the objections of those who accused him of reviving the *occult qualities* of the Aris-

* *Dissertation de la Nature et des Usages de l'Esprit Animal*, par M. Lieutaud, Premier Médecin du Roi, à la suite de ses *Essais Anatomiques*, in 8vo, Paris, 1742

I may afterwards, perhaps, resume the consideration of this subject, if I live to treat of the proofs of Design in the order of the universe. At present, it is sufficient for my purpose to remark, (and the remark is not founded on theory, but a simple statement of a fact,) that although the operations of instinct have no foundation in the experience or reason of the animal, they plainly indicate intelligence in that Being by whom the animal was formed; and who, by adapting its constitution so beautifully to the laws of the material world, has evinced a unity of contrivance which proves that all things, both animate and inanimate, are the workmanship of the same Almighty Author. I shall, therefore, make no scruple, in the further prosecution of this discussion, to speak of the *wisdom* of Nature as it is displayed in these wonderful phenomena; without, however, meaning to suggest at present any theory concerning *the proximate means* which are employed for the accomplishment of the effect. I need scarcely add, that when I speak of the Wisdom of Nature, I mean always the wisdom of the Author of Nature. The expression has the sanction of immemorial use: it is concise, and sufficiently intelligible to candid inquirers; and it enables us to avoid, in our philosophical arguments, the frequent recurrence of a name which ought never to be mentioned but with sentiments of reverence.

In offering these remarks, I would not be understood to disapprove of the attempts of some late authors to analyze the various operations which are commonly referred to the general principle of Instinct. But I must beg leave to remind them, that how far soever we may push the analysis, we must at last arrive at some *fact*, no less wonderful than those we mean to explain. Thus, although it should be made to appear that the actions which a child performs at birth are learned by the *fœtus in utero*, we must still admit, as an ultimate fact, the existence of an original determination to a particular mode of action

totelians, may be applied equally to the word *instinct*, as it is used in our present argument. "These are manifest qualities, and their causes only are *occult*. And the Aristotelians give the name of occult qualities not to manifest qualities, but to such qualities only as they *supposed* to lie hid in bodies and to be the unknown causes of manifest effects."—Newton's *Optics*.

salutary or necessary to the animal; and all that we have accomplished is to refer the origin of this instinct to an earlier period in the history of the Human Mind.

In a very curious and original work, [by Dr. Darwin,] published about thirty years ago, under the title of *Zoonomia*, much ingenuity has been employed, and in several instances with great success, in analyzing those phenomena which are commonly referred to instinct; more particularly in attempting to account for the wonderful efforts which the human infant is enabled to make for its own preservation the moment after its introduction to the light.[1] Thus, it is observed that the *fœtus*, while still in the *uterus*, learns to perform the operation of swallowing, and to relieve itself, by change of posture, from the irksomeness of continued rest; and therefore, (if we admit these propositions,) we must conclude, that some of the actions which infants are vulgarly supposed to perform in consequence of instincts coeval with birth, are only a continuation of actions to which they are determined at an earlier period of their being. The remark is ingenious, and probably just, but it does not prove that *instinct* is an unphilosophical term; nor does it render the operations of the infant less mysterious than they seem to be on the common supposition. It only places these operations in a new light, and, I might perhaps venture to add, in a light more striking than they were viewed in before.

The same author has attempted to account, in a manner somewhat similar, for the different degrees in which the young of the different animals are able, at the moment of birth, to exert their bodily powers. Thus calves and chickens are able to walk almost immediately, while the human infant, even in the most favourable situations, is six or even twelve months old before he can stand alone. For this Dr. Darwin assigns two causes: 1*st*, That the young of some animals come into the world in a more complete state than those of others; the colt

[1] *Biographical Memoirs of Smith, Robertson, and Reid*, p. 485; [*infra*, vol. ix.] From the last of these Memoirs several of the following paragraphs are transcribed.

and lamb (for example) enjoying, in this respect, a striking advantage over the puppy and the rabbit. 2*d*, That the mode of walking of some animals coincides more perfectly than that of others with the previous motions of the *fœtus in utero*. The struggles of all animals (he observes) in the womb must resemble their manner of swimming, as by this kind of motion they can best change their attitude in water. But the swimming of the calf and of the chicken resembles their ordinary movements on the ground, which they have thus learned in part to execute while concealed from our observation; whereas the swimming of the human infant, differing totally from his manner of walking, he has no opportunity of acquiring the last of these arts till he is exposed to our view. The theory is plausible, and does honour to the author's sagacity; but (as I observed in a former instance) it only places in a new light that provident care which Nature has taken of all her offspring in the infancy of their existence.

Another instance may contribute towards a more ample illustration of the same subject. A lamb, not many minutes after it is dropped, proceeds to search for its nourishment in that spot where alone it is to be found, applying both its limbs and its eyes to their respective offices. The peasant observes the fact, and gives the name of *instinct*, or some corresponding term, to the unknown principle by which the animal is guided. On a more accurate examination of circumstances, the philosopher finds reason to conclude, that it is by the sense of *smelling* it is thus directed to its object. In proof of this, among other curious facts, the following has been quoted:—"On dissecting," says Galen, "a goat great with young, I found a brisk *embryon*, and having detached it from the *matrix*, and snatched it away before it saw its dam, I brought it into a room where there were many vessels, some filled with wine, others with oil, some with honey, others with milk or some other liquor, and in others there were grains and fruits. We first observed the young animal get upon its feet and walk; then it shook itself, and afterwards scratched its side with one of its feet; then we saw it smelling to every one of those things that were set in the room,

and when it had smelt to them all, it drank up the milk."[1] Admitting this very beautiful story to be true, (and, for my own part, I am far from being disposed to question its probability,) it only enables us to state the fact with a little more precision, in consequence of our having ascertained that it is to the sense of smelling the instinctive determination is attached. The conclusion of the peasant is not here at variance with that of the philosopher. It differs only in this, that he expresses himself in those general terms which are suited to his ignorance of the particular process by which Nature in this case accomplishes her end; and if he did otherwise, he would be censurable for prejudging a question of which he is incompetent to form an accurate opinion. A person who is totally unacquainted with anatomy, may nevertheless admire (and may admire on as good grounds as Cuvier himself) the mechanism of the human hand, or of the elephant's proboscis.

I cannot refrain from observing here, that Dr. Darwin has manifestly borrowed his translation of the passage above quoted (with a few slight alterations and retrenchments) from Mr. Ray's *Wisdom of God in the Creation;* a book which, among many puerilities, contains, in my opinion, (in addition to the writer's great and acknowledged merits as an observer and as a naturalist,) much sound and valuable philosophy. I would not have taken notice of this circumstance, if he had transcribed the sequel; but the particular sentence at which he breaks off is so remarkable, that it is impossible not to feel some surprise at the motives which led an author, who, in his poetical works, seems so much alive to the charms of nature, both in the material and moral worlds, to suppress the remainder of the narrative. The impression which the fact in question appears to have made on the mind of Galen exhibits so strong a contrast to that which Dr. Darwin labours indirectly to convey, that he ought, as a fair reasoner, to have put it in the power of his readers to form a comparative judgment between them. I must therefore be pardoned, (notwithstanding the unavoidable repetition of a few sentences already

[1] Darwin, vol. i. pp. 195, 196.

quoted,) for copying the whole detail in the words of Mr. Ray's [corrected*] version.

"Nature forming, conforming, and perfecting the parts of the body, hath brought it to pass that they should of themselves, without teaching, perform their proper actions: And of this I once made a great experiment, in bringing up a kid without ever seeing its dam. For, dissecting goats great with young, to resolve some questions made by anatomists, concerning the economy of nature in the formation of the *fœtus* in the womb, and finding a brisk embryon, I loosed it from the matrix after our usual manner; then snatching it away before it saw its dam, I brought it into a room, having many vessels full, some of wine, some of oil, some of honey, some of milk or of another liquor; and others, not a few, variously filled, partly with grains, partly also with fruits; and there laid it. This embryon we saw first of all getting up on its feet, and walking as if it had heard that legs were given to it for that purpose; next shaking off the slime it was besmeared with from the womb; thirdly, moreover, scratching its side with one of its feet; finally, we saw it smelling to every one of those things that were set in the room; and when it had smelt to them all, it supped up the milk. Whereupon, we all for admiration cried out, seeing clearly the truth of what Hippocrates saith,—'*The natures of animals are not taught.*'[1] And

* *Editor.*

[1] Ἐν ᾧ καὶ ἀνακεκράγαμεν απαντες, ἐναργῶς ὁρῶντες ὅπερ Ἱπποκράτης ἔφη,—φύσιεις Ζώων ἀδίδακτοι.† We have here an instance of what I have elsewhere (pp. 134, 135, of this volume,) called a *pure* or *unmixed instinct;* for the animal certainly had never smelt or tasted milk previous to its birth. The same thing may be said of the instinct which, by means of the sense of smell, guides the new-dropt lamb to the milk concealed from its sight in the udder of the ewe.—Another indisputable instance of a *pure instinct* may be noticed in this place, as it must have fallen under the observation of all my readers. It is that which directs ducklings hatched by a hen, *the first time they see a pond,* to run eagerly towards it, and to plunge into the water without hesitation, in spite of all the solicitude of their foster-mother to prevent them. This very common occurrence appears to have strongly excited the wonder of Pliny, who (speaking of the instincts of the hen) remarks:

† The words of Hippocrates are, I presume, from his book, *De Alimento;* but there they stand,—φύσιεις πάντων ἀδίδακτοι. Galen, however, in many places, quotes the saying, and in various terms.—*Ed.*]

thus continuing to nourish this kid, I observed it afterwards not only to eat milk, but also some other of the things that lay at hand. And the season when this kid was taken out of the womb, being about the vernal equinox, after some two months I brought unto it the tender sprouts of shrubs and plants; when again smelling to all of them, it instantly refused some, but was pleased to taste others, and after it had tasted, began to eat of such as are the usual food of goats. Perchance, this may seem a small thing, but what I shall now relate is great. For eating the leaves and tender sprouts, it swallowed them down; and then after a while began to chew the cud; which all that saw cried out again with admiration, being astonished at the natural faculties of animals. For it was a great thing, that when the creature was hungry, it should take the food in through the mouth, and by its teeth: but that what it had swallowed down into the belly, it should again, first of all, bring up into the mouth, and then, after there levigating for a long time the well-mixed pulp, (l. μασσόμενον,) should finally a second time swallow it, not into the same stomach, but into another;—that seemed to us right wonderful indeed. But the many overlook such works of nature, admiring only strange and unusual sights."[1]

Mr. Ray afterwards takes notice of what he considered as a very remarkable circumstance in this detail, "that the kid of its own accord *drank milk after the manner it had done in the womb;* whereas, had it once drawn by the nipple, it would hardly have supped the milk." It is evident, from the clause which I have here distinguished by italics, that Ray had clearly in his view the same idea which Darwin has proposed with respect to the existence of some of the instinctive determina-

"Super omnia est anatum ovis subditis atque exclusis admiratio, primo non planè agnoscentis fœtum: Mox incertos incubitus sollicite convocantis: Postremo lamenta circa piscinæ stagna, *mergentibus se pullis naturâ duce.*"—*Hist. Nat.* lib. x. cap. 55.

[1] Ray, [Part ii.] pp. 350-352, seventh edition. [The place of Galen from whence this is translated, is *De Locis Affectis*, lib. vi. c. 6; (editio Charterii, tom. vii. p. 527; editio Kuehnii, tom. viii. pp. 443, 444.) But if I recollect aright, this experience of the kid is more than once referred to by Galen, in sundry of his works.—*Ed.*]

tions of animals prior to the moment of birth, but that he did not consider them, on that account, as less worthy of admiration. The practical inference he draws from this last observation in the next sentence is not unworthy of attention. "And, therefore, in weaning young creatures, the best way is, never to let them suck the paps at all, for then they will drink up milk without any difficulty; whereas, if they have sucked, some will very hardly, others by no means, be brought to drink. But how," he adds, "do the young *with such facility*, come to take the nipple, and to suck at it, which they had never before been used to do? Here we must have recourse to natural instinct, and the direction of some superior cause."[1]

The foregoing observations on the instincts of the new-born kid are strictly applicable to the attempts which have been made to account for the instincts of migratory birds and fishes, by changes in their sensations produced by the vicissitudes of the seasons. Of these attempts I have met with none which seem to me at all satisfactory; at the same time I have no doubt that it is by some physical means, ("operating, perhaps, on some additional sense or senses of which we can form no idea,") that the effect is accomplished, and I think it highly probable that new lights will be thrown on the subject by the researches of future naturalists.[2] But whatever success may

[1] Ray, [Part ii.] p. 353, seventh edition.

[2] From some observations made by the late Dr. Jenner, in prosecution of a suggestion thrown out by the celebrated John Hunter, it seems now to be completely established, that in the case of migrating birds, the inciting causes of migration are certain periodical changes in the testes and ovaria of the male and female.

The fact is extremely curious, but offers no explanation whatever of the grand problem: it may account for the bird's restlessness and desire to change its abode; but the same difficulty still recurs, and only meets us in a new form. How are we to explain the invariable flights of the bird towards a particular *unknown* region? For it must not be forgotten that its migrating instinct has at once a reference to a period of the season in the country which it leaves, and to that in the country for which it is bound. Of this I have no doubt that both these ingenious authors were fully aware.—*Observations on the Migration of Birds*, by the late Edward Jenner, M.D., F.R.S., *Philosophical Transactions of the Royal Society of London* for the year 1824, Part I.—See also the late Mr. John Hunter's *Observations on certain parts of the Animal Economy*.

attend their inquiries, the provident arrangements thus made for the preservation of animals must still be referred, not to their own foresight and sagacity, but to the wisdom and beneficence of Nature; and the questions so nobly and philosophically expressed by the poet will still remain, and, we may venture to predict, will for ever remain (as to their essential import) in all their force.

> Who bade the stork Columbus-like explore
> Heavens not his own, and worlds unknown before?
> Who calls the council, states the certain day,
> Who forms the phalanx, and who points the way?[1]

The sophistry which runs through Darwin's reasonings concerning instinct, is partly owing to the unauthorized and arbitrary meaning which he has annexed to that word.

"By a due attention to these circumstances," he observes, "many of the actions of young animals which, at first sight, seemed only referable to an inexplicable instinct, will appear to have been acquired, like all other animal actions that are attended with consciousness, *by the repeated efforts of our muscles under the conduct of our sensations or desires.*"[2]

Our sensations and desires (it is to be observed) are admitted by Darwin "to constitute a part of our system, as our muscles and bones constitute another part; and hence," says he, "they may alike be termed *natural* or *connate*, but neither of them can properly be termed *instinctive*, as the word *instinct*, in its usual acceptation, refers only to the *actions* of animals. The reader," continues Darwin, "is entreated carefully to attend to this definition of *instinctive action*, lest by using the word *instinct* without adjoining any accurate idea to it, he may include the natural desires of love and hunger, and the natural sensations of pain and pleasure under this general term."[3]

[1] *Essay on Man*, [Ep. iii. v. 105.]

[2] *Zoonomia*, vol. i. p. 189. Third Edition corrected, 1801.

[3] *Zoonomia*, vol. i. p. 188. Third Edition corrected, 1801.

Were this very arbitrary limitation of the word *Instinct* adopted, we should be forced to reject as improper, the employment of that term in the passage formerly quoted from Mr. Smith, in

According to this explanation, the difference of opinion between Dr. Darwin and his opponents is chiefly verbal; for whether we consider the actions of animals commonly referred to *instinct*, as the immediate result of implanted determinations, or as the result of *sensations and desires* which are *natural or connate*, they afford equally manifestations of design and wisdom in the Author of their being, inasmuch as, on both suppositions, they depend on causes either mediately or immediately subservient to the preservation of the creatures to which they belong. On both suppositions there is an infallible provision and preparation made by the hand of Nature for the effect which she has in view.

I was glad to find that the same remark on this part of Darwin's theory had been previously made by Dr. Paley. "I am not ignorant," says he, "of the theory which resolves instinct into sensation. . . . . Thus the incubation of eggs is accounted for by the pleasure which the bird is supposed to receive from the pressure of the smooth convex surface of the shells against the *abdomen*, or by the relief which the mild temperature of the egg may afford to the heat of the lower part of the body, which is observed *at this time* to be increased beyond its usual state. . . . . In this way of considering the subject, sensation supplies the place of foresight; but this is the effect of foresight on the part of the Creator. Let it be allowed for example, that the hen is induced to brood on her eggs by the enjoyment or relief which, in the heated state of her *abdomen*, she experiences from the pressure of smooth round surfaces, or from the application of a temperate warmth.

which he speaks of the *instinctive perception* of distance from the eye in certain classes of animals. (See p. 253.) The same use of the word occurs in various other parts of his works. "There seems," he observes on one occasion, "to be in young children an *instinctive* disposition to believe whatever they are told." And a few pages afterwards, "The desire of being believed, the desire of persuading, leading and directing other people, seems to be the strongest of all our natural desires. It is perhaps the *instinct* upon which is founded the faculty of speech, the characteristical faculty of human nature."—*Theory of Moral Sentiments*, vol. ii. pp. 382, 384, sixth edition. As an authority for the *usual acceptation* of a philosophical term, Mr. Smith will be allowed to rank somewhat higher than Dr. Darwin.

How comes this extraordinary heat or itching, or call it what you will, which you suppose to be the cause of the bird's inclination, to be felt just at the time when the inclination itself is wanted, when it tallies so exactly with the internal constitution of the egg, and with the help which that constitution requires in order to bring it to maturity? In my opinion this solution, if it be accepted as to the fact, ought to increase, rather than otherwise, our admiration of the contrivance."[1]

Through the various reasonings of the Darwinian School on this subject, there seems to me to run a strange inconsistency. On some occasions they are at pains to represent the brutes as little more than sentient machines, or rather as machines whose movements are set a-going, and are regulated by sensations;—on others they seem anxious to elevate them to the rank of rational beings. Of the former bias we have an instance in the theory (so acutely animadverted on by Paley) to account for the operations of birds in the incubation of their eggs; of the latter, in the explanation which Darwin himself proposes of the phenomena exhibited by some of their tribes in the course of their periodical migrations. "It is probable," he observes, "that these emigrations were at first undertaken as accident directed, by the more adventurous of their species, and learned from one another, like the discoveries of mankind in navigation."[2] It is curious that these philosophers did not also refer the incubation of eggs to the lights afforded by observation and example, aided by those supplied by tradition and by parental instruction; more especially, as Darwin has chosen to explain in this way the wonderful operations of some of the insect tribes. "If we were better acquainted with the histories of

[1] From a comparison of the above passage in Paley's *Natural Theology*, with some of his favourite doctrines in his *Moral and Political Philosophy*, the opinions of the eminent author seem to have undergone a very remarkable change in the course of his philosophical studies. See what I have observed on this subject in the *First Dissertation prefixed to the Supplement to the Encyclopædia Britannica*, [*supra*, *Works*, vol. i. pp. 472, 473.] I must beg leave to request the attention of the curious reader to this reference.

[2] *Zoonomia*, vol. i. p. 231.

those insects that are formed into societies, as the bees, wasps, and ants, I make no doubt but we should find that their arts and improvements are not so similar and uniform as they now appear to us, but that they arose, in the same manner, from experience and tradition, as the arts of our own species; though their reasoning is from fewer ideas, is busied about fewer objects, and is exerted with less energy."[1]

Of the two theories, that employed by Darwin to account for the incubation of eggs, is, I have no doubt, by far the nearest to the truth. As for the other, it is difficult to suppose that Darwin himself was serious when he had recourse to it as an explanation of the migration of birds. When we consider the timid and circumscribed voyages of mankind before the invention of the compass, notwithstanding all the aid derived from the observation of the stars, it is impossible not to wonder by what means Darwin conceived that migrating birds are guided in returning to the same spots; or even, what leads them, at the moment of their departure, to direct their flight to one quarter of the heavens rather than to another. It is upon him and his disciples that in all such matters the burden of proof must legitimately fall. In the meantime, while this problem remains unsolved, we must be allowed to retain the indispensable, though old fashioned, word *Instinct*. Can any thing be imagined more puerile, or more inconsistent with itself, than the aversion of the Darwinians to the use of this term, which leads them always to avoid it, by substituting in its place some other cause implying either much *less* or much *more* sagacity, than *instinct* is commonly understood to express?[2]

[1] *Zoonomia*, vol. i. pp. 256, 257.

[2] I am ready to acknowledge at the same time, as I have done upon a former occasion, (*Philosophical Essays*, Note I, [*infra*, *Works*, vol. v.]), that the word *instinct* has sometimes been used even by our most profound reasoners with too great a degree of latitude. Examples of this might be produced from M. D'Alembert and other eminent philosophers on the Continent, as well as from our countrymen, Mr. Hume and Mr. Smith; but I shall confine myself in this note to a passage from Dr. Reid, in which he gives the name of *instinct* (somewhat loosely, though very intelligibly to every candid inquirer) to the sudden effort we make to recover our balance when in danger of falling; and to certain other instantaneous exertions which we make for our own preservation in circumstances

Before Bacon's time the Aristotelians were apt, in explaining the phenomena of nature, to substitute *final* for *physical* causes. At present it seems to be very generally taken for granted, that when a *physical cause* has once been discovered, the speculation concerning *final causes* or *design* is altogether superseded; whereas, in truth, *physical causes* are only the means by which *design* accomplishes its *ends;* or, if we must still retain the scholastic phraseology, physical causes are but

of unexpected danger.—See his *Essays on the Active Powers*, p. 174, 4to edition.

In this particular instance I agree perfectly (excepting in one single point) with the following very judicious remarks long ago made by Gravesande:—

"Il y a quelque chose d'admirable dans le moyen ordinaire dont les hommes se servent, pour s'empêcher de tomber: car dans le tems que, par quelque mouvement, le poids du corps s'augmente d'une côté, un autre mouvement rétablit l'équilibre dans l'instant. On attribue communément la chose à un *instinct naturel* quoiqu'il faille nécessairement l'attribuer à *un art* perfectionné par l'exercice.

"Les enfans ignorent absolument cet art dans les premières années de leur vie; ils l'apprennent peu à peu, et s'y perfectionnent, parce qu'ils ont continuellement occasion de s'y exercer; exercice qui, dans la suite, n'exige presque plus aucune attention de leur part; tout comme un musicien remue les doigts, suivant les règles de l'art, pendant qu'il apperçoit à peine qu'il y fasse la moindre attention."—*Œuvres Philosophiques de M. 'SGravesande*, p. 121. Seconde partie. Amsterdam, 1774.

The only thing I am disposed to object to in this extract, is that clause where the author ascribes the effort in question to *an art*. Is it not manifestly far more wide of the truth to refer it to *this* source, than with Dr. Reid to an instinct?

The word *art* implies intelligence; the perception of an *end*, and the choice of *means*. But where is there any appearance of either, in an operation common to the whole species, (not excluding the idiot and the insane;)—and which is practised as successfully by the brutes, as by creatures possessed of reason?

The *acquired perceptions* of our different senses, more particularly the *acquired perceptions* of the sense of seeing, (so happily explained by Bishop Berkeley,) afford still more striking illustrations of the same remark. That it is in consequence of experience that we learn to judge of the distances and figures of objects is now universally acknowledged by philosophers; but with what propriety can we ascribe this acquisition to an *art* in the individual, since it is invariably found in the whole human race? All such acquisitions I would propose to call *instinctive acquisitions*, although I am aware that cavillers will object to the expression as a contradiction in terms. It seems to me, on the contrary, a simple and correct statement of the fact; admitting, on the one hand, the influence of experience in producing the habit; and, on the other, keeping in view the necessity of an instinctive determination to account for the universality of the acquisition, and the early period of life at which it is formed.

the instruments by which final causes operate. Thus, when Darwin has traced any of the *instincts* commonly ascribed to the lower animals to the sense of smelling, or to the guidance of natural sensations and desires, he seems to have thought that the whole effect is accounted for by the blind action of physical causes. It does not appear to have once occurred to him, that his theories in these cases, admitting them to be just, not only leave the old argument for *design* in all its force, but afford new illustrations of that harmony, unity, and comprehensiveness of contrivance by which the material and the intellectual worlds are so adjusted to each other as to conspire in accomplishing the same salutary purposes.

The wisdom of nature, as displayed in the instincts of animals, is more particularly conspicuous in those tribes which are led by instinct to associate together in political communities, as the bee and the beaver. Here we see animals who, considered individually, discover but a small degree of intelligence,[1] conspiring together in the accomplishment of effects astonishing by their magnitude, and by the complicated ingenuity they exhibit. In such instances, is it possible to suppose, either that each individual is able to form a conception of the general design to which his labours are subservient, or that there exists in the community a master artist who distributes to the members their various tasks, and combines the exertions of all for their joint advantage? The refinement of contrivance manifested in their works, and the uniformity of their operations from age to age, demonstrate completely the absurdity of both these conclusions.

[1] See the articles *Abeille* and *Castor* in Buffon's *Natural History*. In Professor Pictet's very interesting account of his *Travels in Great Britain*, he mentions a visit he made in company with Sir Joseph Banks, to an old blind beaver which Sir Joseph had kept for ten years in a pond at his house at *Spring Grove*. The curious details he states evince no inconsiderable sagacity and mechanical contrivance in accomplishing particular ends; but these ends are in no respect subservient to the accommodation or comfort of the animal in its actual situation, although manifestly parts of those systematic instincts which belong to it in its social state. The beaver, in short, appears here like a solitary wheel of a machine, which exhibits in its teeth marks of a reference to other wheels wherewith it was intended to co-operate.

"It is a curious mathematical problem," says Dr. Reid, "at what precise angle the three planes which compose the bottom of a cell in a honey-comb ought to meet, in order to make the greatest saving, or the least expense, of material and labour.

"This is one of those problems belonging to the higher parts of mathematics, which are called problems of *maxima* and *minima*. It has been resolved by some mathematicians, particularly by Mr. Maclaurin, by a fluxionary calculation, which is to be found in the *Transactions of the Royal Society of London*. He has determined precisely the angle required, and he found, by the most exact mensuration the subject could admit, that it is the very angle in which the three planes in the bottom of the cell of a honey-comb do actually meet.

"Shall we ask here who taught the bee the properties of solids, and to resolve problems of *maxima* and *minima*? We need not say that bees know none of these things. They work most geometrically, without any knowledge of geometry; somewhat like a child who, by turning the handle of an organ, makes good music without any knowledge of music.

"The art is not in the child, but in him who made the organ. In like manner, when a bee makes its comb so geometrically, the geometry is not in the bee, but in that great Geometrician who made the bee, and 'made all things in number, weight, and measure.'"[1]

[1] *Essays on the Active Powers.* 4to edition, pp. 106-108.

I have purposely avoided entering into any particular discussions with respect to the Instincts of Insects. Dr. Darwin confesses that we have a very imperfect acquaintance with their various tribes. "Their occupations," he says, "manner of life, and *even the number of their senses*, differ from our own, and from each other."—(*Zoonomia*, vol. i. p. 252.) For these reasons, I have confined myself to animals which may be presumed to have been subjected to a more accurate examination by naturalists.

I cannot, however, omit this opportunity of mentioning the pleasure with which I have read the details of the researches concerning ants, by M. Huber of Geneva. His own work I have not seen; but I have read an excellent and most satisfactory account of it in the twentieth volume of the *Edinburgh Review*. My interest in these researches was increased by my acquaintance with the writings of his illustrious father, and by my confidence in the accuracy of an observer formed in the school of Geneva. I must, notwithstanding, be allowed to express my suspicions, that the author, (or his reviewer,) has been sometimes under the influence of a lively fancy. This, I think, among other instances,

Although, however, it may be confidently assumed, as a consequence of the foregoing considerations, that, in the proceedings of the brutes, there is a wisdom displayed which must be referred to a higher origin; it is, nevertheless, indisputable that individuals are left to make some acquisitions by their own personal experience. "It is in this manner," as was long ago remarked by Mr. Hume, "that they become acquainted with the more obvious properties of external objects; and gradually, from their birth, treasure up a knowledge of the nature of fire, water, stones, earths, heights, depths, &c., and of the effects which result from their operation. The ignorance and inexperience of the young are here plainly distinguishable from the cunning and sagacity of the old, who have learned, by long observation, to avoid what hurt them, and pursue what gave ease and pleasure. A horse that has been accustomed to the field, becomes acquainted with the proper height which he can leap, and will never attempt what exceeds his force and ability. An old greyhound will trust the more fatiguing part of the chase to the younger, and will place himself so as to meet the hare in her doubles; nor are the conjectures which he forms on this occasion founded on anything but his observation and experience.

"This is still more evident," continues the same author, "from the effects of discipline and education on animals, who, by the proper application of rewards and punishments, may be taught any course of action the most contrary to their natural

appears in the account given of the various modes in which the different species of ants construct their habitations. "In tracing the design of the cells and galleries, each ant appears to follow its own fancy. A want of accordance must, therefore, frequently take place at the point where their works join: but they never appear to be embarrassed by any difficulties of this kind. An instance is related, in which two opposite walls were made of such different elevations, that the ceiling of the one, if continued, would not have reached above half way of the height of the other. *An experienced ant arriving at the spot seemed struck with the defect*, and immediately destroyed the lower ceiling, built up the wall to the proper height, and formed a new ceiling with the materials of the former."—(*Edinburgh Review*, vol. xx. p. 149.) But the most extraordinary fact which the researches of M. Huber have brought to light, relates to a species of large ants, denominated by him *Amazons*, who seem dealers in something analogous to our slave-trade.—See Note F.

instincts and propensities. Is it not experience which renders a dog apprehensive of pain when you menace him, or lift up the whip to beat him? Is it not even experience which makes him answer to his name, and infer, from such an arbitrary sound, that you mean him rather than any of his fellows, and intend to call him when you pronounce it in a certain manner, and with a certain accent?"[1] To what a degree the number and variety of these acquisitions may be increased, by placing an animal in artificial situations, (by throwing obstacles, for example, in the way of his gratifying the physical wants and necessities of nature,) it is not easy to conjecture. Some interesting experiments and observations on this point may be found in the first volume (if I recollect right) of the *Variétés Littéraires* of M. Suard.[2] The same thing is exemplified in the processes by which dogs, horses, birds, and other animals are trained to the performance of those extraordinary feats, which in all countries form an object of favourite amusement to the multitude, and which, in some respects, are not unworthy of the attention of the philosopher himself.[3]

From these facts it appears clear to a demonstration, that

[1] Hume's *Essays*, vol. ii. pp. 112, 113. London, 1784.

[2] In such cases, shall we ascribe deliberation and contrivance to the brutes, or shall we consider their operations as the result of *latent instincts* developed by the uncommon situations in which they are placed? I throw out this last idea merely as a query, but various circumstances might be alleged in its support. One thing is certain, that the extraordinary acquisitions of the individual are limited to the extraordinary *occasions* which gave them birth, and contribute nothing to the general superiority of his intellectual powers over other animals of the same species. The *occasions* are to be ascribed to *human* ingenuity, no less than the experimental exclusion of light from a plant, when the physiologist wishes to ascertain what that element contributes to the colour, to the smell, or to the upward growth of vegetables.

[3] Persius in the prologue to his *Satires*, has touched with great precision upon the principle on which the latent powers of the lower animals are to be developed.

"Quis expedivit Psitaco suum χαῖρε,
Picasque docuit nostra verba conari?
Magister artis ingenique largitor
Venter, negatas artifex sequi voces."

I have, since I wrote the above, met with the same remark and the same quotation in Leibnitz. "Nec minus animalibus gubernandis præmia prosunt, nam esurienti animali alimenta præbens, ab eo obtinebit, quod alioqui nullo pacto extorserit. Generale instrumentum est escæ, cum parent copia; cum abnuunt denegatio. *Quis expedivit*," &c. &c.—*Opera*, tom. i. p. 167, editio Dutensii.

the brutes are by no means under the guidance (any more than man) *of pure or unmixed instinct*, and that this principle is, in both cases, susceptible of certain modifications from observation and experience. I am inclined, however, to think that the *tentative* efforts of the brutes will be found, on an accurate examination, to be confined within very narrow limits, so that two or three experiments are sufficient to conduct them into the right path. In making these experiments, they are probably urged by some instinctive impulse, without any clear perception of the purpose to which they are subservient; which purpose being once accomplished, it is not surprising that the animal should persevere ever afterwards in that particular mode of exertion which it has found to be successful.[1]

[1] I have often been struck with this idea, on observing the efforts of a bird to escape from a room into which it had entered by an open window. Its efforts are, from the beginning, directed towards the light; but its inexperience with respect to the nature of glass, which unites in itself an unusual combination of the qualities of transparency and of resistance, renders, in general, for a considerable space of time, these efforts abortive. The number of its experiments increases in proportion to the number of windows, or rather in proportion to the number of panes; and, on the other hand, if there were only one aperture in the walls, or if all the panes of glass were removed, the bird would effect its escape at the first trial, and would afterwards pass and repass without any apprehension about the consequences. Something analogous to this may perhaps take place in the case of bees and of other insects who work with geometrical regularity; a conjecture which, if I understand him rightly, coincides in the main with Buffon's idea.

According to this view of the subject, I would not reject as absurd, the well-imagined, and by no means improbable, story of the philosopher's mule, which is quoted by Charron as a decisive proof of the reasoning powers of brutes. "Le mulet du philosophe Thales, portant du sel et traversant un ruisseau, se plongeoit dedans avec sa charge, pour la rendre plus legère, l'ayant une fois trouvée telle y estant par accident tombé; mais estant après chargé de laine ne s'y plongeoit plus." After mentioning a variety of similar anecdotes, resting nearly on the same sort of evidence with the foregoing, he concludes thus: "Toutes ces choses comment se peuvent elles faire sans discours et ratiocination, conjonction et division? C'est en estre privé que ne connoistre cela."—*De la Sagesse*, liv. i. chap. 8.

An example of what I have here supposed to be the constitution of brutes, occurs in the facility with which the human infant acquires the use of its mother tongue. Were the number of alphabetical sounds much greater than it is, the difficulty of the art of articulation would be proportionally increased; nor would it be possible for the natives of the different regions of the globe to approximate to the pronunciation of each other's languages, so as to become

The circumstance, however, which chiefly deserves attention in this part of our argument, is the exclusive and incommunicable appropriation of these acquisitions to the individual animal who has been led to make them. With this individual they all perish without being either copied by others of the same species, or transmitted by parental instruction to future generations; nay, even by this individual himself, they are soon entirely forgotten, if the memory and practice of them are not constantly kept up by the care and discipline of man.

It would appear, therefore, that these acquisitions, whatsoever they may be, are not the result of any knowledge or reason in the animal, but the effect of the general principle of instinct, diversified in its appearance by the unusual circumstances in which it operates. The only inference to which they lead is, that the instincts of the brutes have a certain degree of latitude—a certain power of accommodation to external accidents. They do not even authorize the conclusion, that the nature of the animal who possesses them is *improved* on the whole, inasmuch as the new attainments are not combined with pre-existent instincts, but substituted in their place; and as the animal retains its hold of them when they *are* made, not in consequence of any *knowledge* which it has itself acquired, but of the constant superintendence of that Intelligent Being by whom they were, in the first instance, communicated.

I shall only remark farther, before dismissing this head, that

mutually intelligible. It is the limited number of vowels and of consonants which, in this instance, accomplishes that *abscissio infiniti* which is of so great importance in the exercise of many of our faculties, and which is so peculiarly essential to the success of our instinctive efforts during that period of life when our experiments are made without any distinct perception of their object.

Dr. Holder, in his *Elements of Speech*, recommends to the instructors of the deaf and dumb a general rule (evidently the result of his own observations) which affords a good illustration of these remarks. "Write down *p* and *b*, and make signs to your pupil to endeavour to pronounce them, and guide him by showing him the motions of your own lips, by which he will, *with a little endeavour, stumble upon one of them.*"

The instinctive experiments of brutes are, it is probable, confined within still narrower limits, suitable to the more contracted range of their powers, and to the more urgent pressure of their physical necessities.

the comparison between Man and Brutes has been generally made in a very unfair and illogical manner, the reason of the human race being usually contrasted, not with the instincts of a particular species, but with the instincts of all the different tribes of animals, as if they were combined together in a single individual. We contrast man, not with the horse, the dog, or the beaver, but with the brutes in general; and when we find any particular point in which he is surpassed by any one animal, we think we have succeeded in lowering his pretended superiority. Pope's view of the subject is much more philosophical:—

> "The powers of all subdued by thee alone,
> Is not thy reason all these powers in one?"*

Not that reason is to be considered merely as the result of a combination of various instincts, but as a power of a superior order, fitted of itself to accomplish all those multifarious ends to which the infinitely diversified instincts of the brutes are subservient.

The superiority of reason to instinct is in no instance more strikingly displayed than in those cases where it has been supposed to borrow its lights from the economy of the brutes. When it does so, it is not in the way of blind imitation, (a propensity of which traces may be observed in various tribes of animals,) but by seizing the *principle* on which the instinct accomplishes its purpose, and adding it to the stock of its experimental resources. It is remarkable, too, with respect to the imitative powers of brutes, that they seem to be exercised with little intention or deliberate volition on their part, and that they are in no case subservient to the improvement either of the species or of the individual.

I must not conclude this Section without taking some notice of the instinct of the lower animals, as displayed when they are under the influence of parental affections. Addison observes, that in some of the brutes the instinctive affection of parents to their young seems to be even more intense and violent than

* [*Essay on Man*, Ep. i. 231.]

in rational creatures; and, in proof of this, quotes a fact which that amiable author would probably have been prevented from introducing, by the circumstances of cruelty it records, had it not been for the interesting and striking point of view in which it places one of the most astonishing classes of phenomena exhibited to our observation,—I mean the instinctive attachment of the lower animals to their young, and the instinctive care they take of their preservation. "A person well-skilled in dissections opened a bitch, and as she lay in the most exquisite tortures, offered her one of her young puppies, which she immediately fell a-licking, and, for the time, seemed insensible of her own pain. On the removal, she kept her eye fixed on it, and began a wailing sort of cry, which seemed rather to proceed from the loss of her young one than the sense of her own torments."*

To examine the economy of nature in the phenomena of the lower animals, and to compare their instincts with the physical circumstances of their external situation, forms one of the finest speculations of Natural History; and yet it is a speculation to which the attention of the natural historian has seldom been directed. Not only Buffon, but Ray and Derham have passed it over slightly; nor indeed do I know of any one who has made it the object of a particular consideration but Lord Kames in a short appendix to one of his Sketches. The appendix is entitled, *Concerning the Propagation of Animals, and the Care of their Progeny;* and it contains, among various mistakes and hasty conclusions, some pleasing remarks concerning the benevolent wisdom of Providence, as displayed in its superintending care of the brute creation.

How far the feelings of the brutes towards their offspring are analogous to what we experience in our own case, it is impossible to determine. It is probable, I think, that they differ more widely than we might be apt to conclude on a superficial view of the subject. But whatever conclusions philosophy may lead us to form on this point, it is certain that nothing can be more pleasing than to indulge that illusion of the imagination

* [*Spectator*, No. 120.]

which assimilates, in our apprehensions, their parental affections to ours, and inspires us with a sympathetic interest in all their little concerns, while they are under the influence of this amiable instinct. On no occasion whatever do we feel ourselves so strongly tempted to apply to the operations of Instinct that remarkable expression of Aristotle's, in which he calls them *Μιμήματα τῆς ἀνθρωπίνης ζωῆς*.

What leads me to suspect that the feelings of the brutes towards their young are essentially different from ours, is chiefly this, that in all their various tribes, as soon as the end of the parental affection is accomplished, the connexion ceases entirely; and there is no reason to think, that the members of the same family retain any memory of their former attachment, or even that they are able to distinguish each other from other individuals of the same species. The contrast between this circumstance and what we experience in our own species, gives the chief beauty to the following passage in Thomson, the concluding line of which it seems to me impossible for any person, who has ever experienced either the parental or the filial affection, to read without emotion. It is part of his description of the *last lesson* given by the parent birds to their young when teaching them to fly.

> . . . . . "Down before them fly
> The parent guides, and chide, exhort, command,
> Or push them off. The surging air receives
> The plumy burden, and their self-taught wings
> Winnow the waving element. On ground
> Alighted, bolder up again they lead
> Farther and farther on the lengthening flight,
> Till vanish'd every fear, and every power
> Roused into life and action, light in air
> Th' acquitted parents see their soaring race,
> And once rejoicing never know them more."*

What renders this circumstance in the economy of the brutes, if possible, still more wonderful, is a remark of Addison's, of the justness of which there can be no doubt; that "the love of

* [*Seasons, Spring*, 141.]

the parent may be lengthened out beyond its usual time if the preservation of the species require it, as we may see in birds that drive away their young as soon as they are able to get their livelihood, but continue to feed them if they are tied to the nest, or confined within a cage, or by any other means appear to be out of a condition of supplying their own necessities."[1]

SECTION II.

In what then, it may be asked, does the difference between Man and the Brutes consist? Do their faculties differ from each other *in degree* only, or is there an essential difference between the rational and the animal natures?

On this point philosophers have in general been disposed to run into extremes, and none more remarkably than the French philosophers during the course of the two last centuries; the

[1] [*Spectator*, No. 120.] This remark of Addison's affords me an opportunity of animadverting, once for all, on those numerous passages in which Darwin infers, from the modification of an instinct by external circumstances, that the supposed instinct has really no existence. In this inference he proceeds on the general principle, that all instincts are *necessary* in their operation, and therefore cannot be modified by accidental causes. From this principle it would follow, that the cases mentioned by Addison demonstrate the attachment of birds to their young not to be *instinctive;* whereas, in truth, they afford very strong and striking illustrations of the contrary conclusion.

Of the passages here alluded to in Darwin's section on Instinct, the following extracts will convey a sufficient idea. "This torpid state of swallows is testified by innumerable evidences, both of ancient and modern names. Aristotle, speaking of swallows, says, They pass into warmer climates in winter, if such places are at no great distance; if they are, they bury themselves in the climates where they dwell."

* * * *

"Hence their emigrations cannot depend on a *necessary instinct*, as the emigrations themselves are not *necessary*."—*Zoonomia*, vol. i. pp. 232, 233.

"All birds of passage can exist in the climates where they are produced: they are subject, in their migrations, to the same accidents and difficulties that mankind are subject to in navigation: the same species of birds migrate from some countries, and are resident in others. From all these circumstances, it appears that the migrations of birds are not produced by a *necessary instinct*, but are accidental improvements, like the arts among mankind, taught by their contemporaries, or delivered by tradition from one generation of them to another."—Ibid. pp. 236, 372.

disciples of Descartes allowing no one faculty to belong to man and brutes in common, and considering the latter in the light of mere machines; while the prevailing creed of the present race of French materialists leads to the rejection of every theory which professes to discriminate the rational soul from the animal principle of action.

Mr. Addison appears to me, from various passages in the *Spectator*, to have entertained some vague and not very consistent notions on this question, but, on the whole, approaching more nearly to those of Descartes than of any other philosopher. "There is not," (he observes, No. 120,) "in my opinion, anything more mysterious in nature than this instinct in animals, which thus rises above reason, and falls infinitely short of it. It cannot be accounted for by any properties in matter; and, at the same time, works after so odd a manner, that one cannot think it the faculty of an intellectual being. For my own part, I look upon it as upon the principle of gravitation in bodies, which is not to be explained by any known qualities inherent in the bodies themselves, nor from any laws of mechanism; but, according to the notions of the greatest philosophers, is an immediate impression from the first Mover, and the divine energy acting in the creatures." In the following paper he expresses himself thus:—"As the different principles which act in different animals cannot be called Reason, so when we term it Instinct, we mean something we have no knowledge of. To me it seems the immediate direction of Providence, and such an operation of the Supreme Being as that which determines all the portions of matter to their proper centres."

The opinions of the ancient Stoics seem to have differed still less on this point, from the Cartesian theory. This we learn from a passage in Plutarch, in which it is stated as a doctrine of that sect with respect to animals, *οὐ θυμοῦσθαι, ἀλλ' ὡσανεὶ θυμοῦσθαι· οὐ φοβεῖσθαι ἀλλ' ὡσανεὶ φοβεῖσθαι· οὐ βλέπειν, ἀλλ' ὡσανεὶ βλέπειν, κ.τ.λ.* "That brutes do not feel anger, but appear to feel it; that they are not afraid, but appear to be afraid; that they do not see, but appear to see," &c.[1]

[1] Plutarch, *De Solertia Animalium*, [*Opera*, tom. ii. p. 961, ed. Xyl.]

It is from Descartes, however, that this doctrine has derived its chief celebrity in modern times, and it is principally to the influence of his name that we must ascribe its prevalence both in France and England in the earlier part of the last century.[1] For a considerable number of years past, the French philosophers in general have gone into the opposite extreme, and have employed their ingenuity in attempting to account for the boasted superiority of man, by accidental circumstances in his bodily organization, or in his external condition. Of these theories the following passage from Helvetius will be a sufficient specimen :—

"Many pieces," says this amusing, though paradoxical writer, have been published on the souls of beasts. They have been alternately denied and allowed the faculty of thinking. But perhaps a research sufficiently accurate has not yet been made

[1] The great Pascal is said by Baillet to have esteemed this theory as the most valuable part of the Cartesian Philosophy; probably on account of the easy solution it afforded of the apparent sufferings to which the lower animals are subject. "Au reste cette opinion des automates est ce que M. Pascal estimoit le plus dans la philosophie de M. Descartes."—Baillet, *Vie de Descartes*, tom. ii. p. 537.

Not having access at present to the works of Baillet, I quote this on the authority of Bayle. See his *Dictionary*, Article *Gomezius Pereira*. In proof of the faith attached to it by Father Malebranche, the following anecdote is told, on the authority of *Fontenelle*, by one of his intimate friends, in the *Mercure de France* for July 1757. "M. de Fontenelle contoit qu'un jour étant allé voir Malebranche aux PP. de l'Oratoire de la Rue St. Honoré, une grosse chienne de la maison et qui étoit pleine, entra dans la salle où ils se promenoient, vint caresser le P. Malebranche, et se rouler à ses pieds. Après quelques mouvemens inutiles pour la chasser, le philosophe lui donna un grand coup de pied, qui fit jetter à la chienne un cri de douleur, et à M. de Fontenelle un cri de compassion." "Eh quoi," (lui dit froidement le P. Malebranche,) "ne savez vous pas bien que cela ne sent point?"

On this point the opinion of Malebranche appears to have undergone a change in the progress of his studies; for in the earlier part of his life he certainly believed that animals were sentient beings. We are told, that when pressed in conversation by some of his friends with the sceptical objections to the justice of God drawn from the sufferings of the brutes, the good Father replied, "Apparemment ils ont mangé du foin défendu." This conversation, we may presume, took place before he was acquainted with the works of Descartes.

With respect to this question of Automatism, Fontenelle, a zealous Cartesian, had the good sense to dissent openly from the system of his master, and even to express his approbation of the sarcastic remark of La Motte, "que cette opinion sur les animaux étoit *une débauche du raisonnement*."

into those differences between the nature of man and that of the other animals, from whence the inferiority of what is called the *soul* of the latter is derived. The following considerations seem to go far towards an explanation of the phenomenon:—

"1*st*, The feet of all quadrupeds terminate either in horn, as those of the ox and the deer; or in nails, as those of the dog and the wolf; or in claws, as those of the lion and the cat. This peculiar organization of the feet of these animals deprives them not only of the sense of touch, considered as a channel of information with respect to external objects, but also of the dexterity requisite for the practice of mechanical arts.

"2*d*, The life of animals in general being of a shorter duration than that of man, does not permit them to make so many observations, nor to acquire so many ideas.

"3*d*, Animals being better armed and better clothed by nature than the human species, have fewer wants, and consequently, fewer motives to stimulate and to exercise their invention. If the voracious animals are more cunning than others, it is because hunger, ever inventive, inspires them with the art of forming stratagems to surprise their prey.

"4*th*, The lower animals compose a society that flies from man, who, by the assistance of weapons made by himself, is become formidable to the strongest amongst them.

"5*th*, Man is the most prolific and versatile animal upon earth. He is born and lives in every climate, while many of the other animals, as the lion, the elephant, and the rhinoceros, are found only in a certain latitude; and the more any species of animals capable of making observations is multiplied, the more ideas and ingenuity it is likely to possess."

"But some may ask," continues Helvetius, "why monkeys, whose paws are nearly as dexterous as our hands, do not make a progress equal to that of man?"—"A variety of causes," he observes, "conspires to retain them in that state of inferiority in which we find them. 1*st*, Men are more multiplied upon the earth. 2*d*, Among the different species of monkeys there are few whose strength can be compared to that of man,

and, accordingly, they form only a fugitive society before the human species. *3d*, Monkeys being frugivorous, have fewer wants, and therefore less invention than man. *4th*, Their life is shorter; and, finally, The organical disposition of their bodies keeps them, like children, in perpetual motion, even after their desires are satisfied. In consequence of this last circumstance they are not liable to *ennui;* which ought to be considered (as I shall prove afterwards) as one of the principles to which the human mind owes its improvement.

"By combining," he adds, "all these differences between the nature of man and of beasts, we may understand why sensibility and memory, though faculties common to man and other animals, are, in the latter, only sterile qualities."[1]

It is not a little surprising that, in this theory, Helvetius takes no notice of the want of language in the lower animals,—a faculty without which the multiplication of individuals could contribute nothing to the improvement of the species. Nor is this want of language in the brutes owing to any defect in the organs of speech, as sufficiently appears from those tribes which are possessed of the power of articulation in no inconsiderable a degree. It plainly indicates, therefore, some defect in those higher principles which lay the foundation of the use of artificial signs. But of this subject more fully afterwards.

Among these different considerations stated by Helvetius, the *first* alone seems to me to deserve any particular attention. When to the indispensable necessity of the sense of touch for the examination of external objects, we add the beautiful mechanism of the hand, which Aristotle justly calls "*the instrument of instruments*,"* and without which the practice of many of the arts of life would be quite impossible, it is not wonderful that such a writer as Helvetius should have been led to conclude, that "if the wrist of a man had been terminated by the hoof of a horse, the species would still have been wandering in the forest."[2] Nor is Helvetius the only philo-

[1] *De l'Esprit*, pp. 2, 3.

* [In the *De Anima*, (lib. iii. c. ix. § 2,) he styles the human *Hand*—ὄργανον ὀργάνων. Elsewhere he calls it, —ὄργανον περὶ ὀργάνων, (*De Partibus*, lib. iv. c. 10.)—*Ed.*]

[2] "Si la Nature au lieu de mains et de doigts flexibles eut terminé nos poignets

sopher who has adopted this conclusion. It has found its way even into the speculations of some English metaphysicians, and among those of France (with a few exceptions) it has long formed an established article of faith. Buffon himself, at a still earlier period than Helvetius, carried it so far as to found on it an argument against the practice of swaddling infants. "By this means," he says, "we prevent them from using the hand for six or seven weeks after birth, and retard the improvement of the sense of feeling, from which we derive all our knowledge." "One man," he adds, "excels another in genius and ability, perhaps only because he has been permitted the unrestrained use of this sense at an earlier period." He applies the same idea to other animals, and observes, that "those who have hands (such as apes) have most sagacity; and, in general, that their attainments seem to be proportioned to their capacity of examining the qualities of objects. The elephant, for example, the most sagacious of brutes, possesses in his trunk[1] an organ of touch inferior only to the human hand; whereas fishes, whose bodies are covered with scales, are the most stupid of animals. Serpents are less so, because, though their skin be hard and scaly, they can acquire a more perfect knowledge of the form and other properties of bodies by twisting round them."[2]

In order to form a judgment of this celebrated doctrine, (which was evidently suggested by the philosophy which teaches that all our knowledge is derived from our sensations,) it is proper to attend to the distinction between the perfection of the

par un pied de cheval, qui doute que les hommes ne fussent encore errants dans les forêts comme des troupeaux fugitifs?" —*De l'Esprit*, p. 2.

[1] It is accordingly distinguished in Latin by the same word. "Manus," says Cicero, "etiam data elephanto."—*De Nat. Deor.* lib. ii. cap. 47. At the extremity of this proboscis there is an appendage in form of *a finger*, which the animal uses in laying hold of small objects. Some of those which have been publicly exhibited in England have been taught to take up with this finger a sixpence from the floor; to draw the bolt of a door; and even to untie a simple knot upon a piece of cord.

I am assured, by the best authority, that the elephant, in his wild state, is by no means entitled to a high rank among animals in point of sagacity, and that the faculty by which he is chiefly distinguished above others, is his extraordinary docility or susceptibility of discipline.

[2] *Histoire Naturelle*, tom. iii. pp. 262, 263. Seconde édition. (à Paris, 1750.)

arts, and the perfection of the individual; two things which are so far from always keeping pace together, that the same causes which advance the one are frequently found to counteract the progress of the other. The progress of the arts, for example, supposes the division and subdivision of labour; but it is in situations where this is carried to the greatest length that the mind of the individual is the most debased. The progress of the arts, too, supposes a number of external advantages,—materials on which art is to operate, and tools to be employed in its operations. But the intellectual powers of the individual, so far from requiring to be cherished by the liberality of nature, are most completely unfolded in circumstances where she has been sparing of her gifts. Thus the arts must remain in a comparatively low state where iron is unknown; but the want of this powerful auxiliary only stimulates invention and ingenuity to supply its place by greater manual dexterity;—much in the same manner in which a person who has the misfortune to lose one of his hands, is soon able to apply the other to almost every purpose which he was formerly accustomed to accomplish by means of both.

Suppose for a moment, that, in our species, the wrist *had* been terminated by a hoof like that of a horse, what would have been the consequence? That the acquaintance of the individual with the properties of bodies must have been extremely limited, and that the arts must have remained in a state of comparative infancy, cannot possibly be denied. Nor are these the only disadvantages under which he would have laboured. A considerable part of life must necessarily have been employed in learning to supply the defects of his original perceptions, by comparing them together, and correcting them by each other; and, of course, much of the time would have been lost, which is at present devoted to his intellectual improvement, and to the culture of the useful or elegant arts. But he would have been still a man, in possession of all the faculties and powers which are characteristical of his nature, and would have attained in part, by experience and by the resources of

his own mind, those advantages which other men enjoy in consequence of the use of the hand. Nay, his invention and ingenuity being so forcibly excited at an earlier period of life, perhaps *some* of his intellectual powers might have been more early displayed from the multiplication of his necessities.

In confirmation of these observations, we may remark, that instances now and then occur of persons born without hands, who yet are not inferior in their mental attainments to the rest of their species. One very remarkable example of this occurred in the earlier part of the last century, in a German (of the name of *Buckinger*) who was carried about this country, and exhibited as a curiosity. He was brought into the world without either legs or arms, and yet contrived, by means of a small cleft or fork in one of his stumps, to perform on several musical instruments, and both to write and to draw with the most consummate neatness of execution. A beautiful specimen of his ingenuity in this last way, is preserved in the Council-Chamber of Edinburgh, and is attested to have been his own genuine performance by several gentlemen who were then in office as magistrates, and were eye-witnesses of the fact.

Two very curious examples of the same sort fell under the observation of Montaigne, and are recorded in his *Essays*. "I saw t'other day at my own house," says he, "a little fellow, a native of *Nantes*, born without arms, who has so well disciplined his feet to perform the services his hands should have done him, that in reality his feet have, in a great measure, forgot their natural office. Moreover, he calls them his hands; he cuts with them, charges and discharges a pistol, threads a needle, sews, writes, puts off his hat, combs his head, plays at cards and dice; and all this with as much dexterity as anybody; and the money I gave him he carried away in his foot as we do in our hand."

"I knew another, who, when he was but a lad, flourished a two-handed sword and a halbert, merely by the twisting and turning of his neck for want of hands; tossed them into the

air, and catched them again, darted a dagger, and cracked a whip as well as any waggoner in France."[1]

To these facts I have to add another, of which I can speak from my own personal knowledge. It is the case of a young woman of Somersetshire, (her name was Biffin,) who spent several months in Edinburgh many years ago, and who, I believe, is still alive. In one very important respect her natural disadvantages were still greater than Buckinger's, for she had nothing analogous to that cleft or fork in one of his stumps, of which he seems to have made so much use in his mechanical operations. She was accordingly reduced to the necessity (particularly in the execution of her needle-work, in which she eminently excelled) to employ her mouth, her tongue, and her teeth. In performing the operations of writing and of drawing, she guided her pen or her pencil by pressing it between her cheek and her right shoulder. Her intellectual powers seemed

[1] Montaigne's *Essays*, book i. chap. xxii. See Translation by Mr. Cotton. A fact of the same kind with the last is mentioned by Gaspar Schott, a learned and very ingenious Jesuit of the seventeenth century.

"Il y a eu des hommes sans bras, chez qui ce vice de conformation étoit compensé par une dextérité merveilleuse des pieds, des épaules, &c. Ambroise Paré parle d'un homme de 40 ans, sans bras, vu à Paris, et qui avec les épaules, la tête, et le col, remplaçoit le service des mains; il vola, assassina, et fut pendu." —*Notice Raisonnée des Ouvrages de Gaspar Schott*, à Paris, 1785, p. 39.

Ambroise Paré, the author here referred to, was a celebrated anatomist of the sixteenth century. The degree of credit due to his testimony may be inferred from his holding the office of surgeon to the king, under the successive reigns of Henry II., Francis II., Charles IX., and Henry III.

The learned translator (Mr. Johnston) of Beckman's *History of Inventions* has quoted from Camerarius an account of one Thomas Schweiker, born at Halle in Swabia, in the year 1586. Of this person, who was born without arms, Camerarius assures us, that he not only saw him write, but make pens with his feet. "Nam cum in editiore loco, qui æquaret altitudinem tabulæ, in qua esculenta apposita erant, consedisset, apprehenso pedibus cultro, scindebat panem, et alios cibos; pedes ea postea, nec non et potum, veluti manus, ori porrigebant. Peracto prandio pedibus pingebat, nobis omnibus videntibus, tam elegantes Latinas literas ac Germanicas, ut exempla earum, quasi rem insolitam, nobiscum sumeremus. Postulantibus etiam nobis, cultello parabat calamos ad scribendum aptissimos, quos postea nobis donabat."

To the same translator we are indebted for a reference to a work, in which he says there are several other instances of the same kind. The book is entitled, "*Monstrorum Historia Memorabilis a Joanne Georgio Schenkio a Grafenberg filio*, Francofurti, 1609."—See Note G.

to me far above the ordinary level, and the expression of her countenance (in particular of her eye) was good-humoured and cheerful, yet thoughtful and interesting.

In order to weaken the force of the argument which I am disposed to found on these details, it may perhaps be urged, that such individuals as I now refer to have enjoyed the society of their fellow-creatures, and have derived their intellectual accomplishments from a communication with *them*, *not* from their own personal experience. But do not many of the *brutes* enjoy the society of man, and in what instance have they profited by his instruction, or even learned to copy after his example? It may be said that they are prevented from doing so by the diversity of their natures; but, if this be the case, whence is it that man has derived so many hints from the observation of *their* instincts, as to give some degree of plausibility to those theories which ascribe to this circumstance the origin of some of the most useful arts of human life?

This last consideration, by the way, seems to me to afford one of the most palpable proofs of the essential distinction between man and brutes, that, though admitted to a constant and familiar observation of human arts, they seem perfectly incapable of deriving any advantage from what is exhibited to their senses. The existence of many of them is rendered more comfortable by human ingenuity, yet none of them is capable of imitating the arts of which they have felt the utility from experience. Many of the domestic animals, for example, love artificial heat; and it is said that monkeys, even in their wild state, have been seen to assemble round fires which had been kindled by men. But none of them ever learned the simple art of throwing in a fagot of wood to keep these fires alive. The dog himself, one of the most sagacious of animals, who has an opportunity every day of witnessing our cookery, and who lives in general on food prepared by the fire, was never observed in a single instance to broil a morsel of raw flesh by laying it on the coals. Slight as this barrier may appear between the animal and rational nature, it seems to be perfectly insurmountable; and, indeed, when we reflect on the mischiefs

which might be produced by a rash management of so dangerous an element, we shall see abundant reason to admire that wise arrangement which, among the various inhabitants of the earth, has confined the use of it exclusively to our own species.

The opinion which I have now been combating is not peculiar to the philosophers of modern France. From the memorabilia of Xenophon it appears that it was current among the sophists of antiquity; and the answer which Socrates gives to it is as philosophical and satisfactory as any thing that could possibly be advanced in the present improved state of the sciences.

"And canst thou doubt, Aristodemus, if the gods take care of Man? Hath not the privilege of an erect form been bestowed on him alone? Other animals, indeed, they have provided with feet by which they may remove from one place to another; but to man they have also given the use of the hand. A tongue hath been bestowed on every other animal; but what animal except man hath the power of making his thoughts intelligible to others?

"Nor is it with respect to the body alone that the gods have shown themselves bountiful to man. Who seeth not that he is as it were a god in the midst of this visible creation?—So far doth he surpass all animals whatever in the endowments of his body and his mind. For if the body of the ox had been joined to the mind of man, the invention of the latter would have been of little avail to him, while unable to execute his purposes with facility. Nor would the human form have been of more use to the brute, so long as he remained destitute of understanding. But in thee, Aristodemus, hath been joined to a wonderful soul, a body no less wonderful; and sayest thou after this,—The gods take no care of me? What wouldst thou then more to convince thee of their care?"[1]

[1] The reader, who is unacquainted with Greek, may peruse this work of Xenophon's (undoubtedly one of the most precious remains of ancient philosophy) in the excellent version of Mrs. [Miss] Sarah Fielding. [The reference to the original is book i. ch. iv. sects. 11-14.]

A very remarkable passage to the same purpose occurs in Galen's treatise, *De Usu Partium.* "But, as of all animals, Man is the wisest, so *Hands* are well fitted for the purposes of a wise animal. For it is not because he had hands that he is therefore wiser than the rest, as Anaxagoras alleged; but because he was wiser than the rest, that he had therefore hands, as Aristotle has most wisely judged.*. Neither was it

* [As Aristotle, here alleged in confirmation, was, in fact, the original author of Galen's admirable observations upon the *human hand;* and as the Stagirite is an authority even more weighty than the physician of Pergamus, in confirmation of our author's reasoning in disproof of the hypothesis of Helvetius, I shall translate a few sentences from the relative context of Aristotle, which is in book iv. chapter x. of the treatise *De Partibus Animalium:*—"But why one animal has two feet, another many feet, and a third no feet at all; and why, in general, some organisms are plants, others animals,—this has been already stated. The cause likewise has been assigned, why Man of all animals is alone erect; and why, standing naturally erect, he has no need of forefeet, Nature bestowing on him, in lieu thereof, arms and hands.—Now Anaxagoras says, that *Man is the wisest of animals, because he alone possesses Hands.* It is, however, more rational to maintain, that *Man possesses Hands, because he of animals is the wisest,* for hands are an instrument of prehension, (or appropriation, τοῦ λαμβάνειν.) But Nature, like a wise intelligence, distributes to every creature her several endowments according to the capacity of using them. For it is more proper that a flute should be given to a flute-player, than a skill of flute-playing bestowed on the possessor of a flute; thus adding the lesser to the greater and more excellent, and not, on the contrary, the greater and more excellent to the lesser. But if this be preferable, and if of possibilities Nature always operates the preferable, it is to be presumed, that man is not the wisest of animals from possessing hands, but that he possesses hands from being the wisest of animals. For the wisest can use to the best effect the greatest number of instruments. Now the Hand appears to be, not a single instrument, but many; for it is, as it were, an instrument anterior to, or the condition of, other instruments, [ὄργανον πρὸ ὀργάνων: and in another work, the *De Anima*, Aristotle calls the human Hand, '*the instrument of instruments.*'] Nature, therefore, has bestowed the Hand, as useful for the employment of the greatest number of instruments, on the creature susceptible of the greatest number of arts. Those, therefore, who speak of man among animals not only as ill, but as the one worst provided, (being as they say naked, weak, and defenceless,) do not speak correctly. For the other animals have only a single aid, and are unable to exchange this one for any other, being as it were compelled to sleep always and to perform every action of their life with shoes and gloves on; they have, in fact, no power of throwing off or varying the single defence which haply environs their body. Man, on the contrary, has many aids, and these it is always in his power to change; nay even to choose what arms he will, and when and where he should go armed. For the Hand is both nail and hoof and horn, spear also and sword; in a word, any weapon or instrument. For

his hands, but his reason, which instructed man in the arts. The hands are only the organs by which the arts are practised."[1]

These general considerations seem sufficiently to prove, that the powers of the Human Understanding do not admit of comparison with the Instincts of the lower animals; the difference between them being a difference not in degree but in kind. Perhaps this is the single instance, in which that regular gradation, which we everywhere else observe in the universe, fails entirely. The fact is the more striking, as it fails only with respect to the human *mind;* for the *bodily* organization of man is distinguished from that of some of the brutes, by characteristics which it is difficult, perhaps impossible, to define. But this only places in a more conspicuous point of view, those intellectual prerogatives to which he owes the undisputed empire of the globe; and which open to him a boundless prospect of progressive improvement, amid tribes doomed apparently to retain for ever their primeval rank in the scale of being.

SECTION III.

Still, however, the metaphysical (or rather the logical) question recurs: What are the particular faculties belonging to Man, which are denied entirely to the Brutes?

In considering this question, it is proper always to remember, that the degree of evidence which it is possible for us to attain, is from the nature of the subject, far from being complete. In the case of our own species, we can judge of the

it may be all of these, because all of these it is able to seize and to make use of. To this destination of the hand co-operates its organization. For it is divided—it is cloven into a multitude of parts; since in division there is a capability of conjunction, whereas in conjunction there is no capability of division. Each of the parts, likewise, may be used in one, two, and, indeed, a multitude of ways. The flexures of the fingers are also well adapted for apprehension and compression." And so forth.—*Ed.*]

[1] Lib. i. cap. iii.

intellectual powers of other men, not only from the *appearances* of intelligence exhibited in their conduct, but from the *direct information* which they themselves are qualified to convey to us of the operations of which they are conscious. But, in the case of the brutes, all that we know of their nature is collected from *outward signs*, which are frequently obscure and equivocal; and which, in no instance whatever, afford the same satisfactory information we possess concerning the capacities of the human race. Where their external actions resemble those of man, we are naturally disposed to refer them to the same causes. When a dog howls, for example, in consequence of a blow, we conclude that he feels pain. When he fawns upon his master, after a long absence, we conclude that his apparent flow of affection is founded on something analogous to the power of memory. But still these inferences are not made with the same certainty as those we form concerning the powers of rational beings, who, by describing to us what passes within them, can afford us an opportunity of comparing their intellectual phenomena with our own. Notwithstanding, however, this circumstance, (which must be allowed to invalidate, to a certain degree, the force of our argument,) we are justified, I think, in adopting the foregoing conclusions, by the received maxim in natural philosophy, that *similar effects are to be ascribed to similar causes.* And it is on this principle that we are entitled, in my opinion, to reject as unphilosophical the Cartesian theory, which represents the brutes as mere machines. One thing is certain, that this is all the evidence which the nature of the subject admits of; and that, if we deny its legitimacy, we put an end at once to the inquiry.[1]

[1] In the greater part of the following passage, Laplace appears to me to reason soundly. The analogy he mentions towards the close of it, between chemical affinities, and what he calls *animal affinities*, is too hypothetical to deserve much attention. Nor should I have thought it worth while to take notice of it here, had it not been for the respect which is justly due to the conjectures, however fanciful, of so illustrious an author.

"L'Analogie est fondée sur la probabilité que les choses semblables ont des causes du même genre, et produisent les mêmes effets. Plus la similitude est parfaite, plus grande est cette probabilité. Ainsi nous jugeons sans

Proceeding, then, on the maxim now mentioned, we must allow to the brutes the powers of Sensation, Perception, and Memory. Whether they possess the power of Recollection, is more doubtful. If some of the more sagacious of them do, it is certainly in a very inconsiderable degree. That they are not wholly destitute of the faculty of Conception, we may infer from this that some of them appear to dream, and to be affected with absent objects as if they were present. And that something very analogous to the Associating principle takes place in their minds, is evinced by numberless phenomena. Among these it is sufficient to mention the means which are employed in teaching bears to dance, by making them move on heated floors to the sound of musical instruments; and in training

aucun doute, que des êtres pourvus des mêmes organes, exécutant les mêmes choses et communiquant ensemble, éprouvent les mêmes sensations, et sont mus par les mêmes désirs. La probabilité que les animaux qui se rapprochent de nous par leurs organes, ont des sensations analogues aux nôtres, quoiqu'un peu inférieure à celle qui est relative aux individus de notre espèce, est encore excessivement grande; et il a fallu toute l'influence des préjugés religieux, pour faire penser à quelques philosophes, que les animaux sont de purs automates. La probabilité de l'existence du sentiment décroit, à mesure que la similitude des organes avec les nôtres diminue; mais elle est toujours très forte, même pour les insectes. En voyant ceux d'une même espèce, exécuter des choses fort compliquées exactement de la même manière, de générations en générations et sans les avoir apprises; on est porté à croire qu'ils agissent par une sorte d'affinité, analogue à celle qui rapproche les molécules des cristaux, mais qui se mêlant au sentiment attaché à toute organisation animale, produit avec la régularité des combinaisons chimiques, des combinaisons beaucoup plus singulières: On pourroit peut-être nommer *affinité animale* ce mélange des affinités électives et du sentiment. Quoiqu'il existe beaucoup d'analogie entre l'organisation des plantes et celle des animaux; elle ne me paroît pas cependant suffisante pour étendre aux végétaux la faculté de sentir; comme rien n'autorise à la leur refuser."—*Essai Philosophique sur les Probabilités*, pp. 203, 204.

In this comparison of the regular and complicated operations of certain insects, to the regularity of those chemical combinations which are exhibited in the phenomena of crystallization, Laplace goes, perhaps, a little farther than sound philosophy warrants; but his hypothesis of *animal affinities* is not without its value, as it affords a decisive proof of the contempt with which he regarded that theory which would represent the ingenuity displayed in the works of some of the insect tribes, as analogous to the mechanical arts of the human species, and as manifesting *reason* in the one case no less than in the other. In whatever way the fact was to be accounted for, Laplace seems never to have suspected that the ingenuity of the contrivance was to be referred to the animal.

horses to military service, by combining the idea of their food with the noise of the drum. We must, too, in my opinion, allow them some degree of art, or a capacity of employing simple combinations of means to accomplish particular ends. This, indeed, will be disputed by some theorists; but, in the present argument, I am rather disposed to ascribe to them too much than too little; for, granting all that has ever been claimed in their favour, we shall still find a boundary distinctly and strongly drawn between the animal and the rational nature.

This boundary is drawn by the capacity of Artificial Language, which none of the brutes possess even in the lowest degree.[1] They possess, indeed, natural signs, and the power of understanding their meaning, when employed by their own species; but they discover no marks whatever of a capacity to employ arbitrary signs, so as to carry on reasonings by means of them. Allowing that they possessed all our other faculties, this defect alone would render them totally incapable of forming any general conclusions, and would confine their knowledge entirely to particular objects and particular events.[2] Nor is this all. The same defect would necessarily confine to each individual his personal acquisitions, and would prevent the possibility of any improvements resulting from the mutual communication of ideas, or from a transmission of knowledge from one generation to another.

The facts collected by Darwin to prove the reasoning powers of animals, only show that they are possessed of some small degree of mechanical art. Such, for instance, is the fact he mentions with respect to an old monkey at Exeter Change, London, "who, having lost his teeth, when nuts are given him, takes a stone in his hand, and cracks them with it, one by one, thus using tools to effect his purpose like mankind."

In the first volume of this work, (p. 200,) I have quoted a still more extraordinary fact concerning the sagacity of a monkey, related by M. Bailly in his *Lettre sur les Animaux;*

[1] See Note H.

[2] *Philosophy of the Human Mind*, vol. i. chap. iv. sect. 5, p. 198, *seq.*

and I have subjoined to the narrative the following remark:—"Admitting this anecdote to be correct in all its circumstances, it still leaves an essential distinction between man and brutes; inasmuch as in none of the contrivances here detailed, is there anything analogous to those intellectual processes which lead the mind to general conclusions, and which, consequently, imply the use of general terms. Those powers, therefore, which enable us to classify objects, and to employ signs as an instrument of thought, are, as far as we can judge, peculiar to the human species."[1]

To what this incapacity of language is owing, is a question of more difficult discussion. Locke ascribes it (and, I think, with great probability) to a want of the faculty of abstraction, of which none of the brutes discover the faintest traces.[2] This

[1] An artifice, not less refined than that employed by the monkey mentioned in the above anecdote, was daily put in practice by the female elephant which was lately exhibited at Exeter Change. When the keeper put a shilling near the boards separating the room from the staircase, and ordered her to pick it up, she immediately extended her trunk towards it; *and, finding it placed beyond the reach of that instrument*, she began to blow hard against the boards, so that the blast might move the shilling within her grasp. No spectator, surely, of common observation, who saw this elephant, could help suspecting that this feat, like all her other *performances*, was entirely the result of the instruction and discipline of the keeper. Without meaning to impeach, in the slightest degree, the veracity either of M. Bailly or of his friend, I may be permitted to express my doubts, whether the apparent sagacity of their monkey might not, if his history had been equally well-known, have been accounted for in a similar way; more particularly, when we consider how much the education of this animal is facilitated by those imitative powers which he possesses in so uncommon a degree.

[2] "This, I think, I may be positive in, that the power of abstracting is not at all in beasts; and that the having of general ideas is that which puts a perfect distinction between man and brutes, and is an excellency which the faculties of brutes do by no means attain to," &c. &c.—(Locke's *Essay*, book ii. chap. xi. sect. 10.) The objection stated to this opinion by Darwin, will perhaps appear to the well-informed reader too frivolous to deserve a serious answer; but some reply is called for by the number and presumption of his half-educated, though, in some instances, ingenious disciples. "Mr. Locke," says he, "published an opinion that other animals possessed no abstract or general ideas, and thought this circumstance was the barrier between the brute and the human world. But these abstracted ideas have been since demonstrated by Bishop Berkeley, and allowed by Mr. Hume, to have no existence in nature, not even in the mind of their inventor, and we are hence necessitated to look for some other mark

supposition, it is evident from what I already said on the subject, is perfectly sufficient to account for the phenomena; for it is in consequence of abstraction that we are enabled to classify objects, and to carry on reasonings by means of general terms. And perhaps, in an inquiry of this sort, this is as strong a presumption as can be brought in support of any particular conclusion.

To the question, then, that is commonly asked, whether the brutes are capable of reasoning? we may answer, That, if by *reasoning* be meant a capacity of employing mechanical means to accomplish a particular end, some of the more sagacious tribes do exhibit phenomena which can only be ascribed to this faculty. But if the word *reasoning* be restricted in its meaning to the capacity of carrying on processes of thought by the help of artificial signs, and of thus arriving at general or scien-

of distinction."—*Zoonomia*, vol. i. p. 264. Third edition.

To those who know anything of the controversy here alluded to, it must appear evident that Darwin has completely misapprehended the point in dispute. When Berkeley and Hume denied the existence of *abstract* or *general* ideas, (which two epithets Darwin plainly considered as synonymous,) they never meant to deny the power of the human mind to carry on *general reasonings*, so as to arrive at *general conclusions*. The only difference between them and their antagonists related to the *manner* in which these reasonings were conducted; the one attempting to explain it by the supposition of *abstract general* ideas; the other, by the power which the rational mind possesses to employ *words* or *signs* in a generic sense, as the algebraist employs letters of the alphabet, in order to arrive at general theorems. The doctrine of Locke, therefore, in point of substance, amounts to nothing more than this, that the brutes are incapable of those mental processes (whatever they may be) on which the power of forming general conclusions depends; and, consequently, is not in the least affected by the issue of the controversy between the Realists and their opponents.

It is quite astonishing that a man of Darwin's sagacity should have imagined, after all that has been written on the subject, that one of the circumstances which distinguishes the philosopher from the vulgar is, that he has acquired the power of reasoning without the instrumentality of words; while the fact is, that without the use of words (or of some other species of artificial signs) the power of *general* reasoning would be impossible. "Mr. Horne Tooke has shown," (I quote Darwin's own words,) "that what were called *general ideas*, are in reality only *general terms:* whence arises much error in our verbal reasonings: And hence those who can reason without words reason more accurately than those who only compare the ideas suggested by words; *a rare faculty, which distinguishes the writers of philosophy from those of sophistry.*"—*Zoonomia*, vol. i. p. 178. Third edition, 1801.

tific conclusions, we may venture to affirm, that no symptom of such a power is to be observed in any animal excepting man alone.[1]

[1] Charron, and various other writers since his time, have been led to adopt a different opinion, from a want of attention to an important distinction which I pointed out in a former volume of this work, (vol. ii. pp. 174, 175,) between the assimilation or confounding of objects, which is the consequence of gross and undistinguishing perception, and that scientific classification which is founded on an examination and comparison of individuals. "Les bestes des singuliers concluent les universels, du regard d'un homme seul cognoissent tous hommes," &c.—*De la Sagesse*, liv. i. chap. 8.

"In proportion as a country is more savage," says Humboldt in his *Travels through the Equinoctial Region of the new Continent*, "the instinct of the domestic animals improves in address and sagacity. When the mules feel themselves in danger, they stop, turning their heads to the right and to the left; the motion of their ears seems to indicate that they reflect on the decision they ought to take. Their resolution is slow, but always just, if it be free, that is to say if it be not crossed or hastened by the imprudence of the traveller. It is on the frightful roads of the Andes, during journeys of six or seven months across mountains furrowed by torrents, that the intelligence of horses and beasts of burden displays itself in an astonishing manner. Thus the mountaineers are heard to say, 'I will not give you the mule, whose step is the easiest, but him who reasons best; *la mas racional*.' This popular expression, dictated by long experience, combats the system of animated machines better perhaps than all the arguments of speculative philosophy."—*Personal Narrative*, &c. vol. iii. p. 105.

The language of the American mountaineers on this occasion appears to me quite correct. The most accurate use of words authorizes the application of the word *reasoning* to every exertion of mechanical ingenuity, to accomplish a particular end, no less than to the most skilful use of abstract terms, in order to obtain a general conclusion or theorem. But still these two intellectual processes are essentially different in their effects; and we may allow to the brutes a capacity of carrying on the one, while we deny them altogether a power of carrying on the other.

In an article upon *Instinct*, written, if I am not mistaken, by that eminent naturalist, the Chev. de Lamarck, (see the *Nouveaux Dictionnaire d'Histoire Naturelle*, tom. xvi. à Paris, 1817,) I find the following sentence: "M. Fred. Cuvier, qui a fort bien examiné le jeune Orang Outang apporté vivant en Europe, *établit* qu'il est capable de généraliser ses idées, et de les abstraire par la force du raisonnement." When this Memoir of M. Fred. Cuvier first appeared in the *Annals of the Museum of Natural History*, I remember to have read it with much pleasure and instruction; but I was far from being satisfied that the facts he produces *establish* his proposition, that the animal in question possessed the powers of abstraction and generalization. On the contrary, it appeared to me (as far as I can now recollect) that all the phenomena he describes may be easily accounted for by attending to the distinction referred to in the beginning of this note. It appeared to me farther, that due allowances were not made for that strong instinctive propensity to Imitation so characteristic of this tribe of animals; in consequence of which they

If, however, any doubts should be entertained about this particular hypothesis, it must still be remembered that the facts which it has been brought to explain do not admit of dispute. Can a single instance be alleged in which any one tribe of animals has improved its condition since the earliest accounts given of them by Natural Historians? Are bees advanced a single step since the time of Virgil? Till some authentic instances of this kind are produced, all the extraordinary stories collected by Darwin and others (even admitting the very doubtful evidence on which many of them rest to remain uncontroverted) will never be of any weight in establishing the conclusion at which these authors seem to aim. We may err in the particular faculties we assign as the distinguishing attributes of man, but some distinguishing faculties there must be, to which he owes the progressive improvement of which he alone is capable among the various inhabitants of this globe. It is with a similar remark that Rousseau cuts short the logical controversies about the distinction between man and brutes. "Quand les difficultés qui environnent toutes ces questions, laisseroient quelque lieu de disputer sur cette différence de l'Homme et de l'Animal, il y a un autre qualité spécifique qui les distingue, et sur laquelle il ne peut y avoir de contestation, c'est a faculté de se Perfectionner; faculté qui, à l'aide des circonstances, développe successivement toutes les autres, et réside parmi nous tant dans l'espèce que dans l'individu: au lieu qu'un animal est, au bout de quelques mois, ce qu'il sera toute sa vie; et son espèce, au bout de mille ans, ce qu'elle étoit la première année de ces mille ans."*

may be expected to copy blindly many of those actions which in man must be referred to the rational principles of his nature. The instinctive propensity to the action of *climbing*, for which their bodies are so admirably adapted, ought also to have been taken into account. Perhaps some may be disposed to think that M. F. Cuvier's argument proves rather too much; as it would follow from it that his Orang Outang, (who, at the time of his death, was only fifteen or sixteen months old,) abstracted, generalized, and reasoned at a period of life much earlier than any traces of these powers appear in the most precocious infants of our own species.

* [*Profession de Foi du Vicaire Savoyard.*]

I subjoin, with much pleasure, the eloquent and philosophical reflections of Buffon on the same subject.

"Il faut distinguer *deux genres de Perfectibilité*, l'un stérile et qui se borne à l'éducation de l'individu, et l'autre fécond qui s'étend sur toute l'espèce, et qui s'étend autant qu'on le cultive par les institutions de la société. Aucun des animaux n'est susceptible de cette perfectibilité d'espèce; ils ne sont aujourd'hui que ce qu'ils ont été, que ce qu'ils seront toujours, et jamais rien de plus, parce que leur éducation étant purement individuelle, ils ne peuvent transmettre à leurs petits que ce qu'ils ont eux-mêmes reçu de leurs père et mère: Au lieu que l'homme reçoit l'éducation de tous les siècles, recueille toutes les institutions des autres hommes, et peut, par un sage emploi du temps, profiter de tous les instans de la durée de son espéce pour la perfectionner tous les jours de plus en plus. Aussi quel regret ne devons nous pas avoir à ces âges funestes où la barbarie a non seulement arrêté nos progrès, mais nous a fait reculer au point d'imperfection d'où nous étions partis! Sans ces malheureuses vicissitudes, l'espèce humaine eût marché, et marcheroit encore constamment vers cette perfection glorieuse, qui est le plus beau titre de sa supériorité, et qui seule peut faire son bonheur."*

From the want of abstraction various other defects might be traced. I formerly showed that imagination (understanding, by that term, creative imagination) implies abstraction; and, therefore, we must consider imagination, in this sense, as a faculty peculiar to a rational nature. This conclusion seems to be agreeable to fact; for, though the brutes discover marks of the faculty of conception, none of them exhibit proofs of their being able to form any new combinations. This, too, is what we should expect from their stationary condition contrasted with the progressive nature of man. To *him* imagination is the great stimulus to action and to improvement. To the brutes it could only be a source of discontent and misery.

To the want of imagination, combined with an incapacity to follow out connected processes of reasoning, we may also

* [*Hist. Nat.* tom. xiii. pp. 3, 4, first edition.]

ascribe that remarkable contrast which the condition of the brutes exhibits to ours, in being guided merely by *present* impulses without any regard to remote consequences. Cicero has stated this contrast very precisely and forcibly in the following words:—"Sed inter hominem et belluam hoc maximè interest; quod hæc tantùm quantùm sensu movetur, ad id solum, quod adest, quodque præsens est, se accommodat, paullulum admodum sentiens præteritum aut futurum: Homo autem quòd rationis est particeps, per quam consequentia cernit, causas rerum videt, earumque prægressus et antecessiones non ignorat; similitudines comparat, et rebus præsentibus adjungit, atque annectit futuras; facilè totius vitæ cursum videt, ad eamque degendam præparat res necessarias."[1]

As some authors ascribe reason to Brutes, so others have endeavoured to show that Man, in all his actions, is guided by instinct; and that reason is only an instinct of a particular kind. Mr. Smellie, in his *Philosophy of Natural History*, has laboured to support this paradoxical play upon words; but the idea is of a much earlier date than his [Smellie's] writings, being started long ago by Dr. Martin Lister, and perhaps by others before him.* "Man," says this last author, "is as very an animal as any quadruped of them all, and most of his actions are resolvable into instinct, notwithstanding the principles which custom and education have superinduced." That it is possible, by the aid of arbitrary definitions, to say plausible things in defence of this, or of any other opinion, I will not deny. But still every person of good sense must feel and acknowledge, that the words Reason and Instinct, in their ordinary acceptations, convey two meanings which are perfectly distinct; nor is it difficult to point out (as I have already attempted to show) some of their characteristical differences. In general, I believe, it may be remarked, that although the multitude often confound things which ought to be distinguished, yet there are very few cases indeed, if there be any, in which men of different ages and countries have agreed to dis-

[1] *De Officiis*, lib. i. c. iv.

* [As Ovid, (*Rem. Am.* 10.)—"Et quod nunc *Ratio* est, *Impetus* ante fuit."—*Ed.*]

tinguish things by different names, which have been afterwards found, by an accurate philosophical analysis, to be the same in reality. I shall leave, therefore, this verbal quibble, without any farther comment, to the candid consideration of my readers. More than enough has, I trust, been said in the first section of this chapter to expose its futility.[1]

[1] I copy the following passage from the article *Ame des Bêtes*, in the second volume of a French work, entitled *Dictionnaire des Sciences Naturelles*, (published at Paris in the year 1804.) The coincidence between the opinions of the author, (the illustrious Cuvier,) and those which I have stated in the preceding chapter and in other parts of these *Elements*, gives me a confidence in some of my conclusions which I should not otherwise have felt; and encourages me in the belief, that the Theory of Helvetius, which, not many years ago, was so prevalent in France, is now gradually giving way, among cautious and impartial inquirers, to a philosophy less degrading to the dignity of human nature, and more favourable to human happiness.

" On ne peut donc nier qu'il n'y ait dans les bêtes, perception, mémoire, jugement et habitude; et l'habitude elle-même n'est autre chose qu'un jugement devenu si facile pour avoir été répété, que nous nous y conformons en action avant de nous être aperçus que nous l'avons fait en esprit. Il nous paroit même qu'on aperçoit dans les bêtes les mêmes facultés que dans les enfans; seulement l'enfant perfectionne son état, et il le perfectionne à mesure qu'il apprend à parler, c'est-à-dire à mesure qu'il forme de ses sensations particulières des idées générales, et qu'il apprend à exprimer des idées abstraites par des signes convenus. Ce n'est aussi que de cette époque que date en lui le souvenir distinct des faits. La mémoire historique a la même origine et le même instrument que le raisonnement; cet instrument, c'est le langage abstrait.

" Pourquoi l'animal n'est-il point susceptible du même perfectionnement que l'enfant ? pourquoi n'a t-il jamais ni langage abstrait, ni réflexion, ni mémoire détaillée des faits, ni suite de raisonnemens compliqués, ni transmission d'expériences acquises? ou, ce qui revient au même, pourquoi chaque individu voit-il son intelligence renfermée dans des bornes si étroites, et pourquoi est-il forcé de parcourir précisément le même cercle que les individus de la même espèce qui l'ont devancé? Nous verrons à l'article *Animal* que les grandes différences qui distinguent les espèces, suffisent bien pour expliquer les différences de leurs facultés; mais en est-il qui puisse rendre raison de l'énorme distance qui existe, quant à l'intelligence, entre l'homme et le plus parfait des animaux, tandis qu'il y en a si peu dans l'organisation?"—*Dictionnaire des Sciences Naturelles*, Art. *Ame des Bêtes*. See Note I.

APPENDIX

TO

PART THIRD,—CHAPTER SECOND.

Some Account of JAMES MITCHELL, *a boy born Deaf and Blind. From the Transactions of the Royal Society of Edinburgh, Vol. VII. Part First.*[1]

THE Memoir which I am about to submit to the consideration of the Royal Society, relates to the melancholy history of a boy who was born blind and deaf; and who, of consequence, has derived all his knowledge of things external from the senses of Touch, of Taste, and of Smell.

It is now considerably more than a year since I first heard of this case from my very ingenious friend, Mr. Wardrop,

[1] The connexion of the following Appendix with the preceding chapter may not at first be apparent to a superficial reader; but will at once be acknowledged by all who are able to perceive how strongly the minute details which it contains bear on some of the most interesting questions which relate to the characteristical endowments of the human mind. Solitary as Mitchell is in the midst of society, and confined in his intercourse with the material world within the narrowest conceivable limits, what a contrast does he exhibit to the most sagacious of the lower animals, though surrounded with all the arts of civilized man, and in the fullest possession of all the powers of external perception! Even in his childish occupations and pastimes, we may discern the rudiments of a rational and improvable nature; more particularly in that stock of knowledge, scanty as it is, which he has been led to acquire by the impulse of his own spontaneous and eager *curiosity*. Some of the occupations here described I might almost dignify by the name of *experiments*.

The attentive inquirer will discover in this memoir proofs of his possessing various other faculties and principles not to be found in any of the lower animals; a sense of the ludicrous, for instance, or, at least, a susceptibility of

surgeon in London; a gentleman whose scientific attainmen and professional skill it is unnecessary for me to mention t this audience. The information which he then communicated to me was extremely general; but more than sufficient to excite all my curiosity. "I have at present," says he, "a patient under my care, whose case is, I believe, *unique*. It is a boy fourteen years old, who was born *blind* and *deaf*, and of course *dumb*. His senses of touch and smell have a wonderful degree of acuteness; for by these alone he has acquired a very accurate knowledge of external things, and is able to know readily his old acquaintances from strangers. The powers of his mind are vigorous. He is evidently capable of reflexion and reasoning, and is warmly attached to his parents. He has a most delicate palate, and partakes only of the most simple food. I have couched one of his eyes successfully; and he is much amused with the visible world, though he mistrusts information gained by that avenue. One day I got him a new and *gaudy* suit of clothes, which delighted him beyond description. It was the most interesting scene of *sensual* gratification I ever beheld."[1]

The first idea which struck me on receiving this intelligence was, that so extraordinary a combination of circumstances might perhaps afford a favourable opportunity of verifying or of correcting, in an unequivocal manner, some of those details in Cheselden's celebrated narrative, about which considerable doubts have been lately entertained, in consequence of their dis-

the emotion of laughter; an emotion of which Milton has justly said—

". . . Smiles from reason flow,
To brutes denied."

But, above all, a capacity of carrying on intercourse with other rational beings by means of conventional signs. How far the culture of his intellectual powers might have been carried by the improvement and extension of these rudiments of language, it is difficult to conjecture.

The substance of this Appendix might, I am sensible, have been introduced here in an abridged form; but as the value of the particulars contained in it depends entirely upon their authenticity and accuracy, it appeared to me more proper to reprint it literally as it was at first written. The reader will thus be enabled to judge for himself of the evidence on which every fact rests, which I have thought it of importance to record.

[1] This letter was dated October 4, 1810.

agreement with the results of Mr. Ware's experience.[1] A repetition of such observations and experiments as Cheselden made, would, I imagined, be greatly facilitated by the total *deafness* of the patient in question; the judgments which a blind man is enabled to form of distances (at least of *small*

[1] Mr. Ware's paper here alluded to, is to be found in the *Philosophical Transactions* for 1801. The argument which it has been supposed to afford against Cheselden (founded on the case of Master W.) has always appeared to me to prove nothing, in consequence of its aiming to prove too much. Of this patient, (a boy who was restored to sight at seven years of age, after he had been blind from very early infancy,) we are told, that two days after the operation, the handkerchief which was tied over his eyes having slipped upward, he distinguished the table, by the side of which his mother was sitting. "It was about a yard and a half from him; and he observed, *that it was covered with a green cloth*, (which was really the case,) and that it was a little farther off than he was able to reach."

Mr. Ware afterwards informs us, that "he held a letter before his patient, at the distance of about twelve inches, when he told him, after a short hesitation, that *it was a piece of paper;* that it was square, which he knew by its corners, and that it was longer in one direction than it was in the other."—"I then," says he, "showed him a small oblong band-box, covered with red leather; which he said was *red*, and square, and pointed at once to its four corners. The observation, however, which appeared to me most remarkable, was that which related to a white stone-mug; which he first called a *white* bason, but, soon after, recollecting himself, said it was a mug, because it had a handle."

Of the correctness and fidelity of this statement, I have not the slightest doubt. But the only inference which can, with certainty, be deduced from it is, that the patient saw too well *before* the operation, to make his perceptions *afterwards* of any value for deciding the point in question. If he was able to recognise a *green cloth*, and *a piece of white paper*, the very moment that the bandage was removed, the degree of sight which he possessed previous to Mr. Ware's acquaintance with him, *must* have been such as to furnish him with a variety of *sensations*, quite sufficient to serve as materials for an imperfect *visual language;*—a language, if not accurately significant of comparative distances from the eye, at least fully adequate to convey, through the channel of that organ, the intimation of *distance in general*, or of what Berkeley calls *outness;*—perhaps, also, some indistinct perception of diversities of *visible figure*. The slightest, and to us the most evanescent shades of difference in these sensations, will, we may be assured, become in the case of such an individual, *signs* of all the various changes in the state of surrounding objects, with which they have any connexion.

Having mentioned, on this occasion, the name of Mr. Ware, I think it but justice to him to add, that he does not appear to me to be himself disposed to push his argument against Cheselden so far as has been apprehended by some later writers. In the following passages he not only seems to admit the truth of that optical principle which he has been generally understood to controvert, but

distances) by the ear, approaching, in point of accuracy, very nearly to those which we are accustomed to form by means of the eye. I had once occasion to witness the precision with which Mr. Gough of Kendal (by far the most intelligent and ingenious person, born blind, whom I have happened to meet with) guessed at the dimensions of a large room, a few minutes after he had entered it. The error he committed was a mere trifle; not exceeding what might have been expected from the practised eye of a joiner or of an architect. It is not every operator, however dexterous in his own art, who can be expected to attend sufficiently to these collateral circumstances, or to be fully aware of the difficulty which a blind person, suddenly put in possession of a new sense, must experience, when he attempts to distinguish, in his estimates of distances, the perceptions of the eye from those of the ear or of the nostrils. Something of the same kind, indeed, or at least strikingly analogous to it, happens every moment to ourselves, in

even points at the same explanation which I have already suggested, of the apparent inconsistency between his own experience and that of his predecessor.

"I beg leave," says he, "to add further, that on making inquiries of two children, between seven and eight years of age, now under my care, both of whom have been blind from birth, *and on whom no operation has yet been performed*, I find that the knowledge they have of colours, limited as it is, is sufficient to enable them to tell whether coloured objects be brought nearer to, or carried farther from them; for instance, whether they are at the distance of two inches or four inches from their eyes.

* * * *

"I am aware, that these observations not only differ from those that are related of Mr. Cheselden's patient, but appear *on the first statement*, to oppose a principle in optics, *which I believe is commonly and justly admitted*, that the senses of sight and feeling have no other connection but that which is formed by experience; and, therefore, that the ideas derived from feeling, can have no power to direct the judgment, with respect either to the distance or form of visible objects. It should be recollected, however, that persons who have cataracts in their eyes, are not, in strictness of speech, blind, though they are deprived of all useful sight. The instances I have adduced prove, that the knowledge they have of colours is sufficient to give them some idea of distance, even in their darkest state. When, therefore, their sight is cleared by the removal of the opaque crystalline which intercepted the light, and the colour of objects is thereby made to appear stronger, will it be difficult or unphilosophical to conceive, that their ideas of distance will be strengthened, and so far extended, as to give them a knowledge even of the outline and figure of those objects with the colour of which they were previously acquainted?"

the judgments we pronounce on the beauty or deformity of visible objects, without any suspicion on our part, how much these judgments are influenced by co-existent impressions of odour or of sound.

In consequence of this view of the subject, I had been led by the first general outline which I received of this occurrence, to indulge a hope that the peculiarities of the case might offer some facilities which had not been before experienced, for establishing, by palpable and incontestable proofs, the distinction between the original and the acquired perceptions of sight; while, at the same time, the inability of the patient to answer, by speech, the queries which might be proposed to him with respect to the new world to which he had been so recently introduced, would, I conceived, by drawing the attention of those around him to other signs of a less ambiguous nature, place the results of their observations beyond the reach of controversy.—Not that, even upon *this* supposition, every difficulty would have been removed; inasmuch as intimations concerning *distance* may be occasionally conveyed to a blind man, not only by the sense of smell, but by some of those *feelings* which are commonly referred to the sense of Touch.[1] In observing, accordingly, the first visual perceptions even of a patient born deaf as well as blind, some very nice attentions would be necessary for ascertaining the truth. But what proportion do these bear to the numerous and refined precautions which become indispensable, where the patient is reminded by every query which is addressed to his ear, of the distance and relative position of the questioner? Justly might Diderot say,—"*Preparer et interroger un aveugle né, n'eût point été une occupation indigne des talens réunis de Newton, Descartes, Locke, et Leibnitz.*"—I mention this, because, from the great degree of perfection to which this branch of surgery has been lately carried, the increasing number of such cases may be expected

[1] The blind man of *Puiseaux* (mentioned by Diderot) judged of his distance from the fire-place by the degree of heat; and of his approach to any solid obstacle, by the action or pulse of the air upon his face. The same thing is recorded of Dr. Sanderson by his successor Mr. Colson.

to multiply daily the opportunities of philosophical experiment; and it is of importance, that those who may have the good fortune to enjoy them, should be fully apprized of the delicacy and the complexity of the phenomena which they have to observe and to record.[1]

In giving way to these speculations, I had proceeded on the supposition, that the blindness of the patient was complete; not sufficiently attending to (what was long ago remarked by Cheselden) the qualified sense in which the word *blindness* is understood by surgical operators. "Though this gentleman was *blind*," says Cheselden, speaking of the patient whose case he has so well described, "*as is said of all persons who have ripe cataracts*, yet they are never so blind, from that cause, but that they can discern day from night; and, for the most part, in a strong light, distinguish black, white, and scarlet; but they cannot perceive the shape of any thing. Thus it was with this young gentleman." The case I have since found to have been the same, and in a degree considerably greater, with the boy who has given occasion to this memoir; insomuch that his condition seems to have approached much nearer to that of Mr. Ware's patient than to that of Cheselden's. "At the time of life," Mr. Wardrop observes, "when this boy began to walk, he seemed to be attracted by bright and dazzling colours; and though every thing connected with his history appears to prove that he derived little *information* from the organ of sight, yet he received from it much *sensual gratification*.

"He used to hold between his eye and luminous objects, such bodies as he had found to increase, by their interposition, the quantity of light; and it was one of his chief amusements, to concentrate the sun's rays by means of pieces of glass, transparent pebbles, or similar substances, which he held between his eye and the light, and turned about in various directions. These, too, he would often break with his teeth, and give them that form which seemed to please him most. There were other

[1] For the assistance of those to whom such a subject of observation may occur, some judicious hints are suggested in the *Lettre sur les Aveugles, à l'usage de ceux qui voient*.

modes by which he was in the habit of gratifying this fondness for light. He would retire to any out-house, or to any room within his reach, shut the windows and doors, and remain there for some considerable time, with his eyes fixed on some small hole or chink which admitted the sun's rays, eagerly catching them. He would also, during the winter nights, often retire to a dark corner of the room, and kindle a light for his amusement. On these occasions, as well as in the gratification of his other senses, his countenance and gestures displayed a most interesting avidity and curiosity.

"It was difficult, if not impossible, to ascertain with precision the degree of sight which he enjoyed; but from the preternatural acuteness which his senses of touch and smell had acquired, in consequence of their being habitually employed to collect that information for which the sight is peculiarly adapted, it may be presumed with confidence that he derived little if any assistance from his eyes, as organs of vision. The appearance of disease, besides, in the eyes, were such as to render it in the highest degree probable, that they enabled him merely to distinguish colours, and differences in the intensity of light."

From this history of the patient's previous situation, it appeared evident that his case was not of such a sort as to afford an opportunity of bringing Cheselden's conclusions to the test. On the contrary, his habits of observation, and even of *experiment*, on his visual sensations, combined with the singular acuteness and discrimination of his olfactory perceptions, rendered it almost certain that the results of a successful operation on his eyes would be similar to those described in Mr. Ware's paper. Such, accordingly, has, in point of fact, been the issue of this new experiment; in describing which, however, I must remark, to the honour of Mr. Wardrop, as a cautious and philosophical observer, he has abstained from drawing the slightest inference to the prejudice of Cheselden's statement, —a statement nothing can disprove till a case shall occur of a patient cured of *total* or *almost total* blindness, and till this case shall be observed and examined with all the nice

precautions which so delicate and complicated a phenomenon demands.

I shall not follow Mr. Wardrop through the details of the surgical operation; in performing which, he was forced, by the peculiar circumstances of his patient, to employ a mechanical apparatus, for fixing his body and head in an immovable posture. I flatter myself that he will soon communicate to the public a history of the whole case; and I should be sorry to deprive his memoir of any part of its interest.[1] The general results alone are connected with the objects which I have at present in view, and *these* I shall take the liberty to state in Mr. Wardrop's words.

"When the operation was finished, he expressed great satisfaction; gazed around him, and appeared to distinguish objects. This, however, could not be ascertained in a manner quite satisfactory, as it would have been prejudicial to his recovery to make any experiments; but it could be perceived from the change in the expression of his countenance. His eye, accordingly, being covered up, he was carried home, and put to bed in a dark room; after which he was bled in the arm. . . . .

"On the fourth day, I examined the eye accurately, and observed the state of his vision. I found that the crystalline lens (which had been pushed upwards and backwards) had altered its situation since the operation, and could be again distinguished, covering about one-fourth of the upper edge of the pupil. The other part of the pupil was quite transparent, and all the blood which was effused into the anterior chamber during the operation was now absorbed. On making trial if he could distinguish any object, he readily discovered a book, or any similar thing, placed on the coverlet of the bed; and in many of his attempts, he seemed to judge pretty accurately of their distance.

[1] This very curious and interesting memoir has since been published under the title of *History of James Mitchell, a Boy born Blind and Deaf, with an Account of the Operation performed for the Recovery of his Sight*, by James Wardrop, F.R.S. Edin.; London, printed for John Murray, Albemarle Street, &c. 1813, [4to, pp. 52.]

"On the fifth day he got out of bed, and was brought into a room having an equal and moderate light. He walked about the room readily; and the expression of his countenance was much altered, having acquired that look which indicated the enjoyment of vision. Indeed, he always walked about, *before* the operation, with much freedom; and even on a very rugged and unequal road, he did not appear to suffer in the least from any jolting.

"He appeared well acquainted with the furniture of the room, having lived in it several days previous to the operation; but though he evidently distinguished, and attempted to touch objects which were placed before him, judging pretty accurately of their distances, yet he seemed to trust little to the information given by his eye, and always turned away his head, while he felt accurately over the whole surfaces of the bodies presented to him.

"On the sixth day he appeared stronger, and amused himself a good deal with looking out of the window, seeming to observe the carts and carriages which were passing in the street. On putting a shilling on the middle of a table, he instantly laid his hand upon it.

"On the seventh day the inflammation was nearly gone, and he observed a piece of white paper of this size lying on the table. I took him into the street, and he appeared much interested in the busy scene around him; and at times seemed frightened. A post supporting a scaffold, at the distance of two or three yards from him, chiefly attracted his notice, and he timorously approached it, groping, and stretching out his hand cautiously until he touched it."

Of these very valuable facts Mr. Wardrop has left us to form our own judgment. To myself, I must own, that due allowances being made—1*st*, for the visual *sensations* which were familiar to the patient from his infancy; and, 2*dly*, for the intimate and accurate acquaintance which he had acquired of things external, by a comparison of the perceptions

of *smell* and of *touch*, the result appears, on the whole, as favourable as could reasonably have been expected to the Berkeleian theory of vision: nor am I able to observe a single circumstance of any importance, which is not perfectly reconcilable with the *general tenor* of Cheselden's narrative.[1]

[1] I have said, the "*general tenor* of Cheselden's narrative,"—for there are some *expressions* ascribed by him to his patient, which must, in my opinion, be understood with a considerable degree of latitude. And, indeed, if we reflect for a moment on the astonishment and agitation likely to be produced by the sudden acquisition of a new sense, we cannot fail to be satisfied, that the authority of the narrative rests much more on the conviction which the *whole* circumstances of the case had left on Cheselden's own mind, than on the *verbal* answers (intelligent and satisfactory as most of these are) which his patient gave to the queries of his attendants. It was for *this* reason, among others, that I before hinted at the advantages which he would have enjoyed, in observing and describing the *facts* before him, if his patient had been *deaf* as well as *blind*, like the subject of this memoir.

Of one expression employed by Cheselden's young man, I think it proper to take some notice here, on account of the stress which Mr. Ware seems disposed to lay upon it, as at variance with the language used by his patient Master W. "When the young gentleman first saw," says Cheselden, "he was so far from making any judgment about distances, that he thought all objects whatever touched his eyes, (*as he expressed it*,) as what he felt did his skin." It seems to me inconceivable that Cheselden could have meant this last phrase to be interpreted literally; for the thing which it implies is altogether impossible. The most obvious meaning which the words convey is, that the object seemed to be *contiguous to*, or *in contact with*, the *cornea*; whereas the truth is, that the office of the *cornea* is merely to transmit the rays to the *retina*, which it does without itself receiving any sensible impression of which we are conscious. Mr. Adam Smith, too, has objected to this mode of speaking, though on grounds somewhat different. "When the young gentleman said, (I quote Mr. Smith's words,) that the objects which he saw touched his eyes, he certainly could not mean that they pressed upon or resisted his eyes; for the objects of sight never act upon the organ in any way that resembles pressure or resistance. He could mean no more than that they were close upon his eyes, *or, to speak more properly, perhaps that they were in his eyes.*"* Mr. Smith's idea in this last clause was, I presume, that the local situation of the object was referred by the patient to the *retina*, where the image of the object is painted. Now I confess, for my own part, that although I perfectly agree with Mr. Smith in his criticism on Cheselden, I am by no means satisfied that the emendation which he has suggested of the young gentleman's description is unexceptionable; for it does not appear to me, that the impression of a *moderate* light on the *retina* is accompanied with any perception of the part of the body on which the impression is made. Where the light, indeed, is so powerful as to produce *pain*, the case comes to be different; for a sensation of *touch* is then united with the proper

* See an *Essay on the External Senses*, by Adam Smith, LL.D., (published among his posthumous papers.)

The strong impression which Mr. Ware's paper has lately made on the public mind, and the support which it is probable many readers will imagine that the argument against Cheselden derives from the observations of Mr. Wardrop, will account sufficiently for the length to which the foregoing remarks have extended: or, if any further apology be necessary, I trust that allowances will be made for my anxiety to obtain from the enlightened operators of the present times, an additional contribution of evidence in confirmation of one of the most beautiful, and, at the same time, one of the most important theories of modern philosophy.

Mr. Wardrop afterwards enters into some circumstantial and very pleasing details with respect to an incident alluded to in a passage which I have already quoted from one of his letters,—the joy manifested by his patient when he was first dressed in a suit of *gaudy* clothes. From this part of his memoir I shall only transcribe a few lines. "His partiality to colours seemed to depend entirely on their comparative brilliancy. He, in general, liked objects that were white, and still more particularly those of a red colour. A white waistcoat or white stockings pleased him exceedingly, and he gave always a decided preference to yellow gloves. One day I observed him to take out of his pocket a bit of red sealing-wax, which he had kept for the beauty of its colour. . . . .

sensations of *sight;* and it is characteristical of all sensations of *touch*, that they are accompanied with a perception of the *local situation* of their exciting causes. This, however, it is well known, does not take place with respect to the sensations of smell and of sound; nor do I imagine it to take place, prior to experience, with respect to the sensations received by the eye. And, therefore, if a patient in such circumstances should be led, by his first visual perceptions, to connect them *locally* with the organ by which they are received, I should be inclined rather to ascribe this to concomitant feelings of *pain*, (produced by the recent operation, or by the too sudden impression of a strong light,) than to any of those sensations which are exclusively appropriated to the sense of sight. But this discussion it is unnecessary for me to prosecute at present, as the opinion we may happen to form with respect to it, (whatever that opinion may be,) can never affect the truth of that clause in Cheselden's statement in which he asserts, *upon the evidence of his own observations*, that "when his patient first saw, he was unable to form any judgment about distances." The remainder of the sentence is only a loose and unintelligible comment of the young man on this simple fact.

A pair of green-glasses were given him, with a view of lessening the influence of the bright sun on the still irritable eye; and from them also he derived great pleasure. Indeed, when he first put them on, he laughed aloud with delight."

A few weeks after I had been favoured by Mr. Wardrop with his first communication on this subject, I learned through a different channel, that his patient had left London; and, as I had never happened to make any inquiries about his connexions, or the place of his nativity, I had abandoned for many months all expectations of farther intelligence with respect to him; when he was most unexpectedly and agreeably recalled to my recollection by a letter which I received last week from Mr. Professor Glennie, the very learned and worthy successor of Dr. Beattie in his academical chair at Aberdeen. In this letter Mr. Glennie incloses "*An Account of James Mitchell, a lad in the county of Moray, born blind and deaf;*" drawn up, at Mr. Glennie's request, by a neighbouring clergyman. From the narrative it appears, that this is the very patient who was formerly under Mr. Wardrop's care; and it appears farther, that although his blindness returned again, not long after the operation was performed, the peculiarities of his case still continue to present, *under a new and very different form*, a subject of examination and inquiry, not less interesting than if Mr. Wardrop's exertions in his favour had been rewarded with permanent success.

A short extract from Mr. Glennie's letter will form the best introduction I can prefix to the history which is to follow.

"I send you enclosed an account of a clergyman's son who was born deaf and blind. The account is imperfect as yet; but it is an accurate answer to a series of questions which I put to the clergyman who has taken the trouble to draw it up. As he has very obligingly offered to answer any more queries that I make, I have prepared a good many additional questions, that the present state of the young man's mind may be ascertained with as much accuracy as possible. Much light

might have been thrown on the mental faculties, if accurate experiments and observations had been made on patients in such circumstances as this unfortunate young man. I intend, if it be possible, to visit him during our summer vacation; but I am sensible, that little can be done in such a case, even in a visit of some days, compared with what may be accomplished by his constant attendants, if we could teach them to make the proper experiments. For this purpose, the only thing I can think of, is to direct the mother and sister to have recourse to the narratives of some instances not dissimilar, that their attention may be drawn to their own methods of communication, which, having become habitual, escape their notice. But I must forbear entering on a minute discussion of this case, which appears to me very interesting." . . . .

Before I proceed to read the paper alluded to in the foregoing extract, I think it proper for me to mention, that I have not been favoured with the name of the writer, and that I must therefore request, it may not be considered, in its present form, as a fair subject of discussion or of criticism. That it bears strong marks of uncommon intelligence and discrimination in the observer, must be universally acknowledged; but it reached me so very lately, that I have not had time to solicit, through Mr. Glennie, the author's permission to communicate it to the Society.[1]

[1] I have since learned from Mr. Glennie, that the paper in question was written by the Rev. Thomas Macfarlane, minister of Edinkillie, in the Presbytery of Forres. Mr. Glennie adds a sentence which I beg leave to quote, as some apology for the liberty I now take in mentioning Mr. Macfarlane's name without his express authority. I certainly would not have presumed to do so, if I had not been fully persuaded, that all who are competent to form a judgment on such subjects, will feel much indebted to him for his very interesting and satisfactory statement.

"As I communicated to Mr. Macfarlane your wish to print his memoir, I take for granted that he has no objection to your making this use of his papers, although he has not expressed his sentiments explicitly to this purpose."

Answers to some Queries addressed to a Clergyman in the county of Moray, by Mr. PROFESSOR GLENNIE *of Marischal College, Aberdeen, with respect to* JAMES MITCHELL, *a lad sixteen years of age, who was born blind and deaf.*

"The subject of this brief notice is the son of the Reverend Donald Mitchell, late minster of Ardclach, a Highland parish, lying on the banks of the Findhorn. He was born 11th November 1795, and is the sixth child of his parents, being the youngest except one. All his brothers and sisters, (as were also his parents,) are perfectly free from the deficiency of sight and hearing, which occurs in his case; and are healthy and well formed. His mother, who is an intelligent and sensible lady, very early discovered his unfortunate situation: she noticed that he was *blind*, from his discovering no desire to turn his eyes to the light, or to any bright object; and afterwards, (in his early infancy also,) she ascertained his being *deaf*; from the circumstance that no noise, however loud, awakened him from sleep. As he grew up, he discovered a most extraordinary acuteness of the senses of touch and smell; being very soon able, by these, to distinguish strangers from the members of his own family, and any little article which was appropriated to himself, from what belonged to others. In his childhood, the most noticeable circumstance relating to him, was an eager desire to strike upon his fore-teeth any thing he could get hold of; this he would do for hours, and seemed particularly gratified if it was a key, or any instrument that gave a *sharp sound* when struck against his teeth. This would seem to indicate that the auditory nerve was not altogether dormant. . . . .

"In 1808, and again in 1810, his father carried him to London, where operations were performed upon his eyes by the most eminent practitioners, with *very little*, or rather with *no* (permanent) success;[1] while an attempt that was made at the

[1] That *one* of these operations was attended with considerable success *in the first instance*, appears not only from the extracts already copied from Mr

same time, to give him the sense of hearing, by piercing the tympanum, totally failed.

"Such is the brief *history* of this poor lad; it remains now to give some account of his appearance, behaviour, the feelings by which he seems to be actuated, the manner in which he conveys his desires, and the methods by which he is managed:—

"1. His countenance, notwithstanding his unfortunate defects, does by no means indicate fatuity; nay, the lineaments of thought are very observable upon it. His features at times (in church, for instance, and during the time of family prayer) are perfectly composed and sedate; when sensible of the presence of a stranger, or of any object which awakens his curiosity, his face appears animated; and when offended or enraged, he has a very marked ferocity of look. He is (for his age) of an athletic form, and has altogether a robust appearance.

"2. He behaves himself in company with much more propriety than could be expected; a circumstance owing undoubtedly to the great care of his parents, and of his elder sister. He feeds himself. When a stranger arrives, his smell immediately and invariably informs him of the circumstance, and directs him to the place where the stranger is, whom he proceeds to *survey* by the sense of touch. In the remote situation where he resides, male visitors are most frequent; and, therefore, the first thing he generally does, is to examine whether or not the stranger wears boots; if he does wear them, he immediately quits the stranger, goes to the lobby, feels for,

Wardrop's narrative, but from the following passage in a letter to that gentleman from the Rev. Mr. Mitchell. This letter is dated 5th October 1810, about a month after Mr. Mitchell and his son had left London, to return home by sea.

"James seemed much amused with the shipping in the River, and till we passed Yarmouth Roads. During the rest of the passage, we were so far out at sea, that there was little to attract his notice, except the objects around him on deck. . . . . His eye is now pretty free of the redness it had when he left town, and the cataract in the same movable state, sometimes covering more and sometimes less of the pupil. Though his sight is not much increased since we left London, yet I am perfectly satisfied that what he has got is of essential service."

and accurately examines his whip; then proceeds to the stable, and handles his horse with great care, and with the utmost seeming attention. It has occasionally happened, that visitors have arrived in a carriage, and, on such occasions, he has never failed to go to the place where the carriage stood, examined the whole of it with much anxiety, and tried innumerable times the elasticity of the springs. In all this he is undoubtedly guided by the smell and touch only, without any assistance from sight; for, going to call lately for his mother, I passed him, near to the house, within a few feet, without his noticing me in the least; and offering him a glass of punch after dinner, he groped for it, as one in total darkness.

"3. The feeling by which he appears to be most powerfully actuated, (at least to a stranger,) is curiosity, or an anxious desire to make himself acquainted with everything that is new to him. He appears to feel affection to those of his family very strongly;—discovered extreme sorrow on account of his father's death; laid himself upon the coffin, after his father's corpse was put into it, apparently in much grief; went frequently to his grave, and threw himself upon it, whilst he gently patted the turf, and bemoaned himself greatly. He is likewise capable of feeling mirth, and frequently laughs heartily. He is highly gratified by getting new clothes; and as tearing his clothes is the most usual expression of his anger, so the punishment he feels most is being obliged to wear them after he has torn them. He is subject to anger, upon being crossed in any of his desires, or when he finds any of his clothes, or articles with which he amuses himself, removed from the chest in which he keeps them.

"4. Respecting the manner in which he conveys his feelings and desires, I am much at a loss to give the information that might be expected. It is certain that those of his family know perfectly in what temper of mind he is, and what he wants to have; and these intimations he conveys to them in the presence of strangers, without these last being sensible of his doing so. When he is hungry, he approaches his mother or sister, touches them in an expressive manner, and points

towards the apartment where the victuals are usually kept. If he wants dry stockings, he points to his legs; and in a similar way, intimates his wishes upon other occasions. A pair of shoes were lately brought to him, and on putting them on he found them too small. His mother then took them, and put them into a small closet; soon after a thought seemed to strike him, and he contrived to obtain the key of the closet, opened the door, took the shoes, and put them upon the feet of a young lad who attends him, whom they suited exactly. This action of his implies considerable reflection, and shows that he must have made some accurate examinations, though unnoticed at the time. When he is sick and feverish, which sometimes happens, he points to his head, or takes his mother's hand and places it opposite to his heart, seemingly with an intention that she may observe its beating more quickly than usual. He never attempts to express his feelings by utterance, except when angry, when he bellows in a most uncouth manner. Satisfaction or complacency he expresses by patting the person or object which excites that feeling. His smell being wonderfully acute, he is frequently offended through that sense, when other persons near to him smell nothing unpleasant; he expresses his dissatisfaction on such occasions, by putting his hand to his nose, and retreating rapidly. His taste seems also to be exquisite, and he expresses much pleasure by laughing and smacking his lips, when any savoury victuals are laid before him.

"5. His father, when alive, was at much pains in directing him, as his mother still is; but his elder sister seems to have a much greater ascendency over him, and more power of managing him than any other person. Touching his head with her hand seems to be the principal method which she employs in signifying her wishes to him respecting his conduct; this she does with various degrees of force, and in different manners, and he seems readily to understand the intimation intended to be conveyed. In short, by gratifying him when he acts properly, and withholding from him the objects of his complacency when he has done amiss, he has

been taught a sense of what is becoming in manners, and proper in conduct, much stronger than it could be otherwise believed, that any person, in his singularly unfortunate situation, could acquire."

Since the foregoing narrative reached me, I have had the good fortune to receive a most important and authentic supplement to it, from Dr. John Gordon; a gentleman, on whose recent admission into our number I beg leave to congratulate the Society. Having communicated to him, on the suggestion of our colleague Dr. John Thomson, Mr. Glennie's letter with the inclosed statement, he most obligingly undertook, on a very short notice, to add to it whatever particulars relative to the same subject had fallen under his own personal knowledge. Of the ability with which he has executed this task, amidst his various professional avocations, I have no doubt that the Society will think as highly as I do.

Supplement to the foregoing Account of JAMES MITCHELL, *by* JOHN GORDON, M.D.

"The boy who is the subject of the above interesting communication, was brought by his father to visit me at Forres in the autumn of 1808.

"I found on examination that he had a cataract in each eye. In both, the crystalline lens had a pearly colour, and appeared to be of a firm consistence; but the pupils exhibited very perceptible contraction and dilatation, when the quantity of light was suddenly increased or diminished. The auricle or external part of each ear, and the tube leading from it to the tympanum, were of their natural size and form; and nothing unusual could be discovered in the conformation of the parts about the fauces.

"From the motions which were produced in the iris, by

varying the quantity of light admitted to the eyes, I should alone have been inclined to hope, that the retina was not altogether wanting, and to have urged the propriety of attempting to remove the opaque lens from the axis of vision by a surgical operation. But the following circumstances served to confirm this opinion. In the first place, Mr. Mitchell informed me, that he had often observed his son, sitting for an hour at a time, opposite to a small hole in the south wall of a hut adjoining to the manse, so as to receive the beams of the sun, which shone through the hole during part of the forenoon, directly on his eyes. The boy could have no other motive for placing himself in this situation, but to enjoy a certain agreeable sensation of light; and it is not improbable, that the particular pleasure which he seemed to derive from the light of the sun, admitted in this manner, arose from the eyes having been rendered more susceptible to impressions, by being previously directed to the darker parts of the hut. Secondly, I observed that he very frequently turned his face towards the window of an apartment, and then pressed his finger forcibly backwards between the eyebrow and upper eyelid of one of his eyes, so as to occasion a slight degree of distortion, and a very disagreeable appearance of protrusion of the ball. I supposed, that when he compressed the eyeball in this manner, either some change in the organ was produced, by which he obtained a more distinct impression from the light of the window, or else that the pressure on the retina simply, occasioned the sensation of a luminous ring or spot, which he had pleasure in contemplating. When I put my silver pencil into his hand, after turning it quickly round in the points of his fingers, and applying it to his nose, lips, and the tip of his tongue, he rattled it smartly between his fore-teeth; and his father assured me that he did so with every hard substance which he could convey to his mouth, and that he seemed to have pleasure in repeating this motion with metallic bodies in particular. This circumstance led me to conclude, that vibrations communicated through the solid parts of the head, were capable of producing in him, to a certain degree, the sensations of sound. But these

sensations were obviously so very weak, when compared with those which persons who are affected with obstruction in the Eustachian tubes, can at all times enjoy through the medium of the bones of the head, that I could not but fear that the deafness in this case, depended not on any want of air in the tympanum, but on some great deficiency, or radical imperfection in the structure of the auditory nerve. Although, therefore, no harm could result from piercing the membrane of the tympanum, I did not expect that the sense of hearing would be much improved by this operation.

"With this opinion of the boy's situation, I earnestly recommended it to his father to carry him to London, and to place him under the care of Mr. Ware and Mr. Astley Cooper, in order that the operation of couching or extraction might be performed on one or both eyes, and that the membrane of the tympanum in each ear might be perforated.

"In the course of a few weeks, Mr. Mitchell repaired with his son to London. Mr. Astley Cooper pierced the membrane of each tympanum, but without the slightest benefit; and, at the same time, the late Mr. Saunders operated with the needle on the left eye, and, it is to be presumed, used every effort which the violent struggles of the boy would permit, to depress the cataract; but not the least advantage resulted from the operation.

"In the summer of 1810, several months after his return from London, young Mitchell was again brought by his father to visit me at Forres. When I placed him in a chair before me, and took hold of his head, with a view to examine his eyes, his situation seemed immediately to recall to his memory the painful operations with which this examination had been formerly succeeded, and he withdrew from me in his chair, panting as from a sudden alarm. By patting him gently on the cheek, however, his fears were quickly allayed. The cataract of the left eye, into which the needle had been introduced, had lost its white colour, and seemed as if broken down; but still the lens remained opaque, and he was in every respect as blind as when I first saw him. The pupil, however, of each eye was very

distinctly enlarged when I placed my hand before his face, and it again contracted when the hand was removed; and I observed with great satisfaction, every time I practised this experiment, that when the quantity of light admitted to the eye was increased, the boy expressed his pleasure by a smile. The cataract of the right eye had the same appearance of firmness as before, and I therefore still entertained hopes, that it might be practicable to remove it entirely by the operation of extraction. On stating this opinion to Mr. Mitchell, to the honour of whose memory it ought to be remarked, that he displayed at all times the most earnest anxiety to alleviate the sad condition of his child, he immediately resolved to visit the metropolis once more; and, in compliance with my request, to entrust the treatment of his son entirely to the judgment and practical skill of my friend Mr. Wardrop. In a few weeks Mr. Wardrop wrote to me, that having resolved to attempt extracting the cataract from the right eye, he had endeavoured, by means of powerful machinery, as well as the aid of numerous assistants, to fix the boy's head in a position sufficiently steady for so delicate an operation; but that his struggles were so violent as to render every effort for this purpose ineffectual. The attempt at extraction was therefore relinquished; but, soon afterwards, I had the satisfaction of being informed by Mr. Wardrop, that he had so far succeeded, by the use of the couching-needle, in breaking down the cataract, and removing it from the axis of the eye, that his young patient had been able to see a very small object of a white colour, when placed on a table before him. This partial success from Mr. Wardrop's operation, led me to anticipate, with no small confidence, a still further improvement in young Mitchell's vision, from the gradual absorption of some of the broken fragments of the opaque lens or its capsule. But in this expectation I have been altogether disappointed. In the month of June last, I saw him repeatedly at his father's house, and had ample opportunity of observing his motions with attention. When he approached any object, such as a wall, a cart, or a carriage, so large as to be in part interposed between his eyes and the

horizon, he seemed to discover its vicinity only by the interception of the light which it occasioned, and cautiously put out his hands before him, to feel for that with which he was already almost in contact. But he did not appear to be at all capable of perceiving minute objects, nor of distinguishing in the slightest degree between one colour and another. His powers of vision, therefore, so far from continuing to improve since the successful result of Mr. Wardrop's operation, have but too plainly undergone a degree of failure. A fragment of the substance of the lens, or of its capsule, very white and opaque, may still be seen behind one-half of the pupil, and through the lower half, a slighter opacity is very perceptible in the parts situated farther back.[1]

"On the whole, I am of opinion, that if this unfortunate, but very interesting boy, should at any future period be induced, either by being informed through the medium of some peculiar language, of the object in view, or from his increased knowledge in the kindness and good intentions of his relations, to submit patiently to the operation of couching or extraction, either of these operations ought to be repeated on one or both eyes. At the same time, it must be confessed, that since the attempts of this kind already made, have not only failed to communicate to him the powers of distinct vision, but also the perception even of the more striking differences in the degrees and kinds of light, there is but too much reason to fear, that the optic nerve, although not entirely deficient, is yet imperfect in its structure.

"I have but little to add to the full account which is given in Mr. Glennie's communication, of young Mitchell's general appearance and conduct. The knowledge which he has derived from the senses of Touch, Taste, and Smell, seems fully

[1] . . . . "You will perceive, from the account of the state of the cataract immediately after the operation, that a part of the opaque body still hung over a portion of the pupil. I have been told lately, that he now sees little or none. If this be the case, I suspect it must have been from the cataract passing over the whole of the pupillar opening, instead of being altogether absorbed, or remaining out of the way, as might have been expected."—*Extract of a Letter from Mr. Wardrop to Mr. Stewart, dated August* 10, 1812.

as extensive, as what any person of the most perfect faculties might be supposed to acquire, if he could by any contrivance be prevented from using his eyes and ears for the same period of time, from the moment of his birth, and in the same retired situation of the country. The train of his thoughts seems to be regulated by the same principles as that of the soundest minds. His actions neither indicate incoherence nor fatuity; but everything he does appears capable of being easily traced to rational motives. His more pleasurable sensations are obviously enjoyed from the senses of Taste and Smell; and, indeed, I have never observed anything disagreeable in his manner, except the keenness and voracity with which he devours his food. But he derives amusement also from the sense of Touch. His father told me, that he had often remarked him, employing many hours in selecting from the bed of the river, which runs within a few yards of the house, stones of a round shape, nearly of the same weight, and having a certain degree of smoothness. These he placed in a circular form on the bank, and then seated himself in the middle of the circle.

"There is a certain range around the manse which he has minutely explored by his organs of Touch, and to any part of this space he seems to walk, when he pleases, fearlessly and without a guide. I believe his range does not yet extend beyond two hundred yards in any direction; but there is probably not a day elapses, during which he does not cautiously feel his way into ground which he had not explored before; and thus gradually extends his yet very circumscribed field of observation. It was in one of these excursions of discovery, that his father observed him with horror, creeping on his hands and knees along a narrow wooden bridge which crossed the river, at a point where the stream is deep and rapid. He was immediately arrested in his progress; and as his father wished to discourage him from hazarding so perilous an attempt again, a servant was directed to plunge him, as soon as he was secured, once or twice into the river. This measure has had the desired effect.

"From a similar solicitude about his safety, the servants had been enjoined to prevent him from visiting the stable, which he never fails to do, the instant he has discovered by the presence of an additional whip in the lobby, that the person who has arrived has brought a horse with him. I have been assured, however, that after his wishes in this respect had been repeatedly thwarted, he at last had the ingenuity to lock the door of the kitchen on the servants, in the hopes that he might then accomplish his visit to the stable unmolested.

"His father once told me an anecdote of him, which displays, in a very striking manner, both the retentiveness of his memory, and the benevolent feelings of which he is susceptible. He had received a severe wound in his foot, and during its cure, he usually sat by the fireside, with his foot resting on a small footstool. More than a year afterwards, a servant boy with whom he used to play, was obliged to confine himself to a chair from a similar cause. Young Mitchell, perceiving that his companion remained longer in one situation than he used to do, examined him attentively, and seemed quickly to discover, by the bandages on his foot, the reason of his confinement. He immediately walked up stairs to a garret, sought out, amidst several other pieces of furniture, the little footstool which had formerly supported his own wounded limb, brought it down in his hand to the kitchen, and gently placed the servant-boy's foot upon it.[1]

"The last time I saw young Mitchell was on the melancholy occasion of his father's funeral, in the month of June last. According to Mr. Glennie's communication, it would seem that the boy, even before his father's interment, had expressed by sorrow and bemoaning, a knowledge of the irreparable loss he had sustained. On this point, the deep distress under

[1] Somewhat similar to the above anecdote, is the following very pleasing fact, communicated to Mr. Glennie by Hugh Irvine, Esq., (son of Mr. Irvine of Drum.) I give it in Mr. Irvine's own words.

"Mr. Leslie of Darkland, a clergyman, called one day, and was taken by Miss Mitchell to see something out of doors. When they returned, James Mitchell perceived (no doubt by the sense of smell) that his sister's shoes were wet: he then went and felt them, and would not let her rest till she changed them."

which the family then laboured, prevented me from making any inquiries. But the poor lad's behaviour on the day of the funeral seemed to me so little expressive of grief, that I cannot help doubting in some degree the accuracy of Mr. Glennie's information. It will be regarded as a pleasing testimony of the sincere esteem in which Mr. Mitchell was held for his moral worth and exemplary piety, that several hundreds of his friends and parishioners assembled together, to carry his remains to the grave. While this concourse of people waited the commencement of the procession in front of the manse, young Mitchell at one time moved rapidly among the crowd, touching almost every body, and examining some very minutely; at another time he amused himself opening and shutting the doors, or turning down and up the steps of the carriages; or suddenly he would walk towards the coffin, which was placed on chairs before the door of the house, run his fingers along it with marks even of pleasure, and then trip lightly away, without the slightest expression of sorrow. He accompanied the procession to the church-yard, and returned after the interment, apparently as much unmoved as before. But on the following morning, as I have since been informed, and on several mornings afterwards, he visited the grave, patted gently the turf which had been laid over it, and at last, as if hopeless of his father's return, became sorrowful even to tears."[1]

The case described in the foregoing papers is said by Mr. Wardrop, in a letter of his already quoted, to be *unique*, to the

[1] Soon after this memoir was read, I informed Mr. Glennie of the difference in the accounts given by Mr. Macfarlane and by Dr. Gordon, of young Mitchell's behaviour on the day of his father's funeral. In a letter with which he has lately favoured me, (dated May 10, 1812,) there is a passage transcribed from a letter of Mr. Macfarlane's, (dated May 7,) which I think it proper to subjoin to the foregoing details, as an important document with respect to this interesting point;—the only point of any consequence in which the two papers do not perfectly agree.

"In the account which I transmitted to you of James Mitchell, I mentioned that he seemed much afflicted and very sorrowful the day of his father's funeral; and I now beg leave explicitly and

best of his knowledge; and that it really is so, I am inclined to believe, as far as this can be inferred from the silence of scientific writers.[1] That it is, at least, a very *rare* occurrence,

positively to state, that when the coffin which inclosed his father's corpse was brought from the house, and placed upon chairs in the court before the manse, previous to the interment, I approached to the coffin, and soon after saw James Mitchell come from the house in considerable agitation. He turned about his head rapidly, and *snuffed* very much, evidently guiding himself by the sense of smell. He directly approached the coffin, smelled it most eagerly for several seconds; then laid himself down upon the lid, on his face, and embraced the coffin, while his countenance discovered marks of the most lively sorrow. I stood close by him, and after a short time, patted his head once or twice; upon which he rose, and returned into the house. This occurred immediately upon the coffin being brought out, and about twenty minutes before it was lifted, in order to be carried to the church-yard. As the accuracy of my information on this subject has been doubted, I purposely delayed writing to you, till I should have an opportunity of conversing with the Reverend Pryse Campbell, minister of Ardersier, brother-in-law to Mrs. Mitchell, who was present at the funeral, and by whose direction everything was conducted. I fell in with this gentleman on Tuesday se'ennight, at the meeting of our Provincial Synod. I took an opportunity there of asking him, if he observed any marks of sorrow about James Mitchell on the day of his father's funeral. He replied, that he did observe the most unequivocal marks of grief in his countenance; and added a circumstance which escaped my notice, that when the coffin was about to be lifted, in order to be carried to the church-yard, James Mitchell clung to it, endeavouring to prevent its being carried away, and that he (Mr. Campbell) was obliged to remove him from it by force."

After quoting the above passage, Mr. Glennie adds:—"Mr. Macfarlane, in his remarks on the apparent inconsistency between Dr. Gordon's account of young Mitchell and his own, has expressed what occurred to me immediately after I read your last letter." His words are,—"I would observe, that the circumstances mentioned by Dr. Gordon, of Mitchell's running through the crowd, and touching every person, do not, in my opinion, amount to a proof, that he was insensible of the loss which he had sustained, and felt no grief on that account. In acting thus, Mitchell (if the expression may be allowed) was merely *viewing* the assemblage of people around him. This he could not do by his eyes; but being eager to examine them, he did so by means of the senses of which he has the use. In short, he was grieved; but, in this instance, his curiosity overcame his grief." The remark certainly does honour to Mr. Macfarlane's sagacity, and, in my opinion, goes far to reconcile the two narratives. I hope to be able soon, through Dr. Gordon's means, who proposes to pass a part of this summer in that neighbourhood, to obtain from the mother and sister of the young man, a still more circumstantial account of his general behaviour, and of the apparent state of his feelings at this trying crisis of his life. Some very interesting particulars, with respect to these points, (which have been already communicated to me,) may be found in a letter from Dr. Gordon, annexed to this Memoir. (May 20, 1812.)

[1] In Diderot's very ingenious and

is demonstrated by a passage in the Abbè Sicard's *Course of Instruction for the Deaf and Dumb*, where it is mentioned only as a hypothetical contingency, which had been contemplated

fanciful *Letter on the Blind*, there are various allusions to the hypothetical case of an *Aveugle-Sourd-Muet*. In one passage, he remarks, somewhat whimsically, that if a person born in these circumstances should begin to philosophize concerning man, according to the method of Descartes, he would place the seat of the soul at the tips of his fingers; and, in all probability, after an effort of profound meditation, would feel his fingers ache as much as we should do our heads. From the following sentence one would be led to suppose, that Diderot had actually seen or heard of persons in the same condition with Mitchell; but if this really had been the fact, we may presume with some confidence, that he would not have contented himself with so vague and equivocal a reference to an occurrence at once so anomalous and so curious in the physical history of man. "*Faute d'une langue, la communication est entièrement rompue entre nous et ceux qui naissent sourds, aveugles, et muets: ils croissent, mais ils restent dans un état d'imbecillité.*"

In those valleys of the Alps, indeed, where the disease of *Crétinisme* is common, examples are said frequently to occur of an almost total deprivation of all the senses; but, in such instances, the individual presents invariably, in the low and humiliating state of his intellectual capacity, a very striking contrast to the subject of this memoir. The *universal* torpor in the perceptive faculties of the *Crétin*, is plainly an effect of the same radical disorder which impairs his intellect; whereas, in the instance before us, (as in every instance where the intellect is entire,) the mind, checked and confined in the exercise of one class of her powers, displays her native strength by the concentrated energy which she exhibits in others. The following description relates to *an extreme case of Crétinisme*; for it appears that it admits of various gradations. It is taken from the most circumstantial, and apparently the most accurate, account of this local malady that has fallen in my way.

"The sensibility of the *Crétin* is extremely obtuse: he dreads neither cold nor heat, nor vermin; nor even those blows which would be insupportable to another.

"The greater part are evidently deaf and dumb; although I have happened to see a few who would shudder at the report of a pistol. These last would seem to receive some passive impression from sound; but they are certainly incapable of *listening* to what is passing around them. The organ of Smell is insensible; and the power of Taste but imperfectly developed. The sense of seeing alone appears uninjured by the disorder; but even from *this* they derive little benefit. They gaze with indifference on the spectacle of Nature; and if they *see*, can hardly be said to *perceive*." . . .

"This disease is peculiar to the human species. All the classes of animals, from the oyster to the monkey, possess a sufficient degree of *intelligence* to procure the means of their own subsistence. The *Crétin*, on the other hand, would die of hunger, if his wants were not provided for by the attentions of others."—*Traité du Goître et du Crétinisme*, par F. E. Foderé, Ancien Médecin des Hôpitaux civils et militaires. A Paris, an VII.

Since this note was written, I have received a letter from Mr. Glennie, in which he remarks, and, in my opinion,

by him and by his predecessor the Abbé de l'Epée, as a possible, and not altogether as an improbable event, among the various physical calamities to which our species is liable. It appears from the same ingenious author, that the Abbé de l'Epée had even gone so far, a few years before his death, as to offer, in some of the Continental Journals, with his characteristical benevolence, to undertake the charge and tuition of any child who might be brought into the world in these unfortunate circumstances; and M. Sicard has not only taken the trouble to record the general principle on which the Abbé de l'Epée intended, if this accident should occur, to proceed in the education of his pupil; but has added some very judicious strictures of his own, on the imperfections of the plan which his predecessor proposed, in such an instance, to follow. These strictures I cannot help taking this opportunity of recommend-

very justly, that the case of Mitchell is probably not so *very* rare an occurrence as we might at first be disposed to imagine. "Among the various merits (he observes) of this worthy family, their superiority to such prejudices as would have precluded our getting any information about the lad's state of mind, is deserving of peculiar notice. . . .

"I have reason to believe, that there are others in circumstances similar to young Mitchell's, whose cases are, at this day, kept so secret, that they are not so much as known to the inmates and members of the family to whom they belong."

(While this Appendix was in the press, I learned from my printer, (by whose intelligent and friendly suggestions I have often profited,) that a case similar in some respects to Mitchell's is related in a *Description of the Shetland Islands*, by Samuel Hibbert, M.D., F.R.S.E., published at Edinburgh in 1823. The unfortunate individual in question is a native of the small island of Fetlar; his name is David Gilbert Tait; and his age, at the time Dr. Hibbert saw him, was twenty-five years. His blindness and deafness seem to be still more complete, if possible, than Mitchell's, but, in other respects, he exhibits a far less interesting subject of observation, as it appears from the particulars mentioned by Dr. Hibbert, that, besides the want of two of the most important of the external senses, he labours under such a deficiency of intellect, as to render him altogether incapable of receiving any improvement from education. His situation, in short, in point of mental powers, approaches to the *extreme cases of Crétinisme* mentioned in the preceding part of this note. Dr. Hibbert's narrative, however, which reflects honour on the author as an inquisitive and philosophical observer, contains a variety of curious facts relating to the physical condition of Tait, which derive an additional interest from the striking contrast they present to the condition and habits of Mitchell.—28th Aug. 1826.) [Cases of the privation of both senses are given by Michæler and by Schubert, in their several works on Language and on Psychology; but, as I recollect, the descriptions are perfunctory and general.—*Ed.*]

ing to the attention of those who may attempt the farther instruction of young Mitchell. The following abridged translation[1] of a passage in the preface, may, in the meantime, suggest some useful hints.

. . . "But if there should be found a person deaf and dumb, in whose case the use of this visible language was impracticable; if, among the afflicting exceptions and mutilations of nature, an individual should occur, deaf and blind from his birth, to what class of *signs* should we have recourse in attempting *his* education? At what an immense distance from other men would a being so cruelly degraded be placed; and how difficult to transport him across that gulf by which he is separated from the rest of his species! The means of instruction employed in ordinary instances of dumbness, would here be manifestly inapplicable; all of these means presupposing the use of sight, to which a constant reference is made, not only in the communication of physical ideas, but in typifying the processes of thought, and in rousing the dormant powers of the understanding.

"I flatter myself I have already proved, that from the beginning, Man possessed, in his own bodily organs, two different *media* for conveying his ideas; and that instead of employing *oral speech*, he might have had recourse to a *manual language*. Why, then, might we not, in the supposed case of a blind and deaf pupil, avail ourselves of the assistance of the latter, which, if not visible to his eye, would be at least tangible to his hand? It is only extending farther the use of a species of signs already practised between Massieu and me, when, during the darkness of night, he *sees* by his own hands whatever mine would express to him. Why should not the blind and deaf pupil be taught to converse in the same manner during the light of day?"

"Ah! if the experiment I should wish to make were to

[1] In this translation, I have not only omitted several sentences in the original, which did not appear to bear upon my present object, but have not scrupled to interpolate a few clauses of my own, which I thought might be useful in conveying the author's meaning more clearly to an English reader. The *sense* of the passage is rendered, to the best of my judgment, with perfect fidelity.

prove not altogether useless; if, as I have already done for the deaf and dumb, I should be the instrument of bestowing a *mind* on this still more unfortunate object, I should myself enjoy a degree of happiness greater than any which *he* could possibly derive from the success of my labours!

"My illustrious predecessor had the boldness to think, that even *this* case, if it should be realized, would not present insurmountable obstacles to an instructor. The following is an outline of the plan upon which, he told me, it was his intention to proceed.

"An alphabet of polished steel was to be employed as the *materials* of his nomenclature for sensible objects, and for those *actions* which might be brought under the cognizance of the sense of Touch. He hoped to be able to familiarize his pupil with these characters, so as to devolve upon his hands the office of his eyes; and for this purpose he proposed to make him feel the object with one hand, while he was learning to distinguish its name with the other. His inventive genius would doubtless have led him, in the course of his experiments, to whatever other means were necessary for the attainment of his end.

"I am perfectly aware, that difficulties would immediately present themselves at every step; for how would it be possible, without any intercourse either by the eye or by the ear, to establish in the pupil's mind, the connexion between the object and its sign? I apprehend it would be necessary here to avail ourselves of some of his animal instincts; to withhold, for example, the objects of his desires and wants, till he should recollect their names, and exhibit their characters.[1] This first

[1] In the case of Mitchell, the difficulties here alluded to would probably be experienced in a comparatively small degree, in consequence of the previous use of those significant pressures on his forehead, of which his sister has taught him to comprehend the meaning. If this should turn out to be the fact, she has already got over, by her own ingenuity, the first and most arduous step in the whole process of his education.

Mr. Wardrop takes notice, in one of his communications, of his extreme docility, and of his obedience to the commands of his sister, who, during his stay in London, "was his constant companion and guide." "It was astonishing," he adds, "how readily she could communicate to him, by signs, her wishes."

step would perhaps be followed by a second; that of teaching him to distinguish the qualities and modes of objects. Colours and sounds would, of course, be excluded from our lessons; but the *forms* of bodies, which fall under the province of Touch, might be easily impressed on his memory; and upon this basis, what should prevent us from proceeding to rear a metaphysical structure? If those qualities which strike the sense of Sight have gradually led the deaf and dumb to the knowledge of things intellectual and moral, why should not the qualities about which the sense of Touch is conversant, be made the channel to the same sort of information? Instead of speaking to the eye, we have only to speak to the hand. In truth, the whole system of instruction explained in the following work, might be adapted to our new pupil, by presenting to him, in *relievo*, the various delineations and diagrams by which it is illustrated; those slight changes being made in the method, which the circumstances of the case would readily suggest. *This* pupil (as has often happened in the education of the deaf and dumb) would soon become the master of his teacher; and every step which was gained, would of itself point out the next which was to be taken.[1]

"May such a system of instruction remain always matter of pure speculation! God forbid, that a child should ever be brought into the world, without any substitute but the hand for the eye and for the ear! But as, unfortunately, such a deviation of nature from her usual course, is an event but too possible, let us consider beforehand what may be done, by

[1] It is somewhat surprising, that the Abbé Sicard should have overlooked the aid which the sense of Smelling seems so peculiarly calculated to furnish, for rearing his proposed *Metaphysical Structure*. Some of the most significant words relating to the Human Mind, (the word *sagacity*, for instance,) are borrowed from this very sense; and the conspicuous place which its sensations occupy in the poetical language of all nations, shows how easily and naturally they ally themselves with the refined operations of the Fancy, and with the moral emotions of the Heart. The infinite variety of modifications, besides, of which they are susceptible, might furnish useful resources, in the way of association, for prompting the memory, where it stood in need of assistance.

One of the best schools for the education of such a pupil, would probably be a well-arranged Botanical Garden.

way of remedy or of alleviation. To restore a man to society, to his family, and to himself, would be an enjoyment too exquisite, and a conquest too proud, to permit us to abandon the undertaking in despair."

For a comment on the above observations, I must refer to the work at large. They who read it with attention, and who enter fully into the author's views, will be at no loss to perceive the different modifications which his plan will require, in applying it to such a case as that of Mitchell. His fundamental principles are general, and deeply philosophical; being, all of them, deduced from a careful study of the steps by which children gradually and insensibly acquire the use of oral speech; and, of consequence, they are equally applicable to every species of *signs* by which one mind can hold intercourse with another. In the meantime, I beg leave to add to the foregoing quotation, the account given by Sicard of his first lesson to Massieu, as it touches on a very natural mistake, which, with a few, if any exceptions, has misled all those who have hitherto undertaken the education of the deaf and dumb; and which, in case any attempt should be made for the farther improvement of Mitchell, it may be worth while to point out, by way of caution, to his instructors.

"My first lesson was employed upon the alphabet. I had not yet reflected on the imperfection of this method, which, from the first outset, counteracted that analytical procedure which is natural to the mind, and by which alone the mind can be guided to the use of its faculties. What information, in reality, (as I afterwards began to question myself,) can the understanding possibly derive from a series of abstract characters, arranged in a particular order by chance or caprice, and to which nothing equivalent can be exhibited in Nature? But it was thus that my illustrious master began, and every step in his system seemed to me then indispensable and sacred."

In a subsequent passage, M. Sicard takes notice still more explicitly, of the absurdity of teaching a pupil in such circumstances to read or to copy isolated letters, in that order which our alphabet exhibits. "What interest," he asks, "could

Massieu have felt about characters signifying nothing, and occupying, without any conceivable reason, a certain place in an arbitrary series? Accordingly, I directed his attention at once to words, without attempting to explain to him that the elements of these words were letters, and still less that these letters were consonants and vowels. Indeed, how was it possible for him to annex any notion to the technical terms of grammar, when he was not yet in possession of a language, and when he had only a few fugitive notions to fix and to express?"

In these extracts, M. Sicard describes, with great candour, the process of thought by which he was conducted to (what I consider as by far the most important of the many improvements which he has introduced into his art) the simple, yet luminous idea, of copying his plan of instruction, not from the example of a schoolmaster teaching a child to read, but from the example of the child itself, in acquiring the use of its mother-tongue. Of these two methods, the former, it must be owned, is by far the more obvious; and where mere articulation is the chief object of the teacher, it will probably be found the more easy and effectual in practice. But Sicard's aim was of a different, and of a higher nature;—not to astonish the vulgar by the sudden conversion of a dumb child into a speaking *automaton;* but, by affording scope to those means which Nature herself has provided for the gradual evolution of our intellectual powers, to convert his pupil into a rational and moral being. The details of his lessons, accordingly, are not more interesting to the few, who may attempt the education of such unfortunate *exceptions* as Massieu or Mitchell, than to all those who delight in tracing to their elementary principles the materials of human knowledge, and in marking the first openings of the infant mind.[1]

In order to complete the history of Mitchell, I am aware that a variety of curious points still remain to be ascertained;

[1] See the Note at the end of the Memoir, [p. 337, *seq.*]

and, if I had not been anxious to bring it forward to public notice, even in its present imperfect state, without any farther delay, I should have been inclined to retain it in my own hands, till my information on the subject should have been a little more ample. My wish, I must acknowledge, is, That some plan could be devised for removing the young man to Edinburgh; or rather, (as he has been accustomed hitherto to enjoy the air and the freedom of the country,) to some quiet residence in the neighbourhood; to some situation in short, where an opportunity would be afforded for examining and recording, under the eye of this Society, the particulars of a case, to which it is to be hoped, that nothing similar will again occur in our times. Something, it would appear from Dr. Gordon's statement, may perhaps, at a future period, be attempted for the extraction of his cataracts,—in which event, (should the operation succeed,) I need not say, what an accession would at once be made to his own enjoyments, and to his value as an object of philosophical curiosity. But even on the supposition that this hope should be disappointed, a subject of inquiry not less interesting than any question connected with the Theory of Vision, will still remain,—to ascertain how far it might be possible, by following out the Abbé Sicard's hints, to cultivate the intellectual and moral faculties of a human being, destitute of the two senses which are the ordinary vehicles of all our acquired knowledge. Nor do I apprehend that this experiment would be attended with such insuperable difficulties as might at first be suspected; as I am assured by the best authority, that his eldest sister, whose good sense has already devised some imperfect modes of communication with her unfortunate brother, possesses talents which fully qualify her to carry into execution any plan that may be proposed for his farther improvement. His age, at present, only exceeds by two years, that of Sicard's celebrated pupil Massieu, when his education was begun; and at that period Massieu, though he had the inestimable advantage of possessing the sense of sight, seems to have had his rational faculties as imperfectly developed as those of Mitchell.

I must, at the same time, observe here, in justice to myself, that my expectations of the future improvement of the latter, are by no means so sanguine as those which the Abbé Sicard would probably have indulged in similar circumstances. Were it possible, indeed, to place him under the immediate tuition of that eminent man, I have little doubt that much more would be accomplished than appears to us to be practicable; but the difference between his situation and that of Massieu is so immense, as to render all our conclusions founded on the history of the one, quite inapplicable (except with great modifications) to the case of the other. The slowness with which the sense of Touch proceeds, in collecting information concerning the external world, when compared with the rapid perceptions of the eye, would, on the most favourable supposition, retard infinitely the rate of his progress in acquiring even the first elements of knowledge. This, however, furnishes no argument against the attempt; nor does it even tend to diminish the value of the results to which it might lead. The slightest addition that could be made to his present range of ideas, by means of an improved system of *signs;* and still more, the slightest development that could be given to any of his dormant powers, might afford not less important *data* for philosophical speculation than the most extensive acquisitions.

Having mentioned more than once the name of Massieu, I think it proper to subjoin to the preceding remarks, the description of him given by Sicard, at the time when their acquaintance commenced. It may serve to show, that the idea of attempting the education of Mitchell, even at the age of sixteen, is not altogether chimerical.

"The reader will easily form an idea of the character and manners of Massieu, when he is told, that he was born in a cottage, six leagues from Bordeaux; and that his relations (who were the only individuals with whom he ever had any intercourse) had not even taken the trouble to communicate to him the slightest information about material objects. His childhood had been spent in tending a flock; and all his ideas were confined within the narrow circle which had fallen under

his random observation. Massieu was a Man of the Woods; untinctured with any habits but such as were purely animal; astonished and terrified at everything. In coming to Bordeaux, he had believed that he was only changing his place of abode, and that he would be employed there in keeping another flock; but it was towards the beloved scene which he had left, and which had witnessed the first sports of his infancy, that his imagination was incessantly turned. In everything he saw, he apprehended some danger; in every step he was directed to take, he suspected some snare. How far was this simple boy, accustomed as he was to consider himself on a level with the animals entrusted to his care, from dreaming that he was about to be raised by education to the rank of Man! His clouded and inexpressive countenance, his doubtful and shifting eye, his silly and suspicious air,—all seemed to announce, that Massieu was incapable of any instruction. But it was not long till he began to inspire his teacher with the most flattering hopes."

Abstracting, however, entirely from all conjectural speculations with respect to Mitchell's possible attainments in future, the particulars already in our possession afford *data* for some important conclusions concerning the capacities of the Human Mind, considered in contrast with the instincts of the Brutes. For these I do not think that the *Transactions* of this Society afford a proper place; and I have accordingly, all along, confined myself to the detail of *facts*, leaving the philosophical inferences to which they may lead for future consideration.

Nor is it in this point of view alone that his case is an object of curiosity at the *present* moment. The examination of his powers of external perception (considered merely as articles of natural history[1]) promise, under the peculiar circumstances of

[1] I cannot help quoting here a very curious observation of Mr. Wardrop's, with respect to the partialities and dislikes conceived by Mitchell, in consequence of the *moral expression*, (if I may be allowed such a phrase,) which he seems to have attached to particular sensations of smell. "When a stranger (says he) approached him, he eagerly began to touch some part of his body, commonly taking hold of his arm, which he held near his nose; and after two or three strong inspirations through his nostrils, appear decided in his opin-

his condition, a field of study, of which, if it has ever occurred before in the annals of our species, no scientific use appears to have been made. How much the simultaneous exercise of our different senses obstructs the perfection of each, may be inferred from the delicate touch and acute hearing of the blind. It remains to be ascertained, to what degrees of improvement, the perceptions of Feeling, of Taste, and of Smell, may attain in an individual possessed of these senses alone.[1]

I shall only add farther, before concluding this memoir, that, in submitting it to the Royal Society, I was partly influenced by the hope, that it may possibly be the means of securing a decent provision for the individual to whom it relates; perhaps, also, a competent independence for those members of his family on whom he has been so long a burdensome and expensive charge. I allude not merely to his mother, whose claims must immediately force themselves on the notice of every one, but more particularly to his eldest sister, on whom the duties of superintending and educating him have chiefly devolved from his infancy. To the painful and incessant attentions which his helpless condition required, the best years of her life have been hitherto devoted; and so essential is the continuation of the same affectionate cares to his comfortable existence, that, inde-

ion. If it happened to be unfavourable, he suddenly went to a distance with the appearance of disgust; if favourable, he showed a disposition to become more intimate, and expressed, by his countenance, more or less satisfaction."

[1] In one of the communications which I have received, it is said, that "Mitchell has been known to follow the footsteps of another person for two miles, guided merely by the sense of smelling." As this circumstance, however, is stated only on report, I have not introduced it into the text; and mention it here chiefly in the hope of obtaining more precise and authentic information upon the subject.

It would be desirable also to learn something more circumstantial and specific, both with respect to the discriminating powers of his palate, and his predilections in the article of food.

Neque inutile foret, neque ab honestissimâ sapientiâ alienum, novisse quomodo hic miserandus, jam puber factus, se habuerit quod ad res venereas; hunc appetitum an senserit necne; quâ formâ, quibus indiciis se prodiderit; fœminarum an virorum consortio adolescenti magis placeat; socii sexum an olfactu dignoscere videatur. Hæc et similia bene multa, dictu parum decora, scitu verò non indigna, si modò observandi copia data fuerit, unicuique in mentem venient cui Naturæ Humanæ scientia est cordi, quique infelicissimum et penè singularem illius statum ritè contemplabitur.

pendently of what is due to her own singular merits, she must of necessity be included in any arrangement, of which his improvement and happiness are the principal objects. For the purposes already mentioned in this paper, the funds of the Society, I am well aware, are altogether inadequate; but if they shall be pleased to recommend the business to the consideration of their Council, I have no doubt that something may be suggested for the accomplishment of a measure which, even if it should fail in adding materially to the stock of useful knowledge, would at least prevent the regrets which might afterwards be felt, if so rare an opportunity for philosophical observation and experiment should be suffered to pass before our eyes, without any attempt being made to turn it to the advantage of science.

NOTE, p. 332.

I have been led to insist at some length on the philosophical merits of Sicard's plan of instruction for the dumb, not only because his fundamental principles admit of an obvious application (*mutatis mutandis*) to the case of Mitchell, but because his book does not seem to have attracted so much notice in this country as might have been expected, among those who have devoted themselves to the same profession. Of this no stronger proof can be produced, than the stress which has been laid by most of our teachers on the *power of articulation*, which can rarely if ever repay, to a person born deaf, the time and pains necessary for the acquisition. This error was, no doubt, owing, in the first instance, to a very natural, though very gross mistake, which confounds the gift of Speech with the gift of Reason; but I believe it has been prolonged and confirmed in England, not a little, by the common union of this branch of *trade* with the more lucrative one, of professing to cure organical impediments. To teach the dumb to speak, besides, (although, in fact, entitled to rank only a little higher than the art of training starlings and parrots,) will always appear to the

multitude a far more wonderful feat of ingenuity, than to unfold silently the latent capacities of the understanding; an effect which is not, like the other, palpable to sense, and of which but a few are able either to ascertain the existence, or to appreciate the value. It is not surprising, therefore, that even those teachers who are perfectly aware of the truth of what I have now stated, should persevere in the difficult, but comparatively useless attempt, of imparting to their pupils that species of accomplishment, which is to furnish the only scale upon which the success of their own labours is ever likely to be measured by the public.

The example of Dr. Wallis of Oxford, the most eminent English author who has yet turned his attention to this study, has probably had considerable influence in misleading his successors. His thoughts (as he tells us himself) were originally led to it by his analytical inquiries concerning the mechanical formation of articulate sounds, a subject which he appears to have very deeply and successfully meditated; and accordingly, the first step which he took with his two most distinguished pupils (Popham and Whaley) was to teach them to *speak*. He also informs us, that he had in various instances applied the same principles in curing organical impediments. Indeed, it was evidently on this branch of his art that he valued himself chiefly as an instructor of the dumb. In cultivating the intellectual powers of these, his success does not seem to have been such as to admit of comparison with that of the Abbé Sicard; and it is remarkable that the pupils, of whose progress he speaks most highly, are a few with whom he carried on all his intercourse by means of writing, without wasting any of their time in communicating to them the gift of oral speech. "Alios aliquot surdos, loquelam docere non aggressus sum, sed solummodo ut res scriptas mediocriter intelligerent, suaque sensa scripto quadantenus insinuarent: Qui, tempore non longo, progressus eos fecerint, rerumque plurimarum notitiam acquisiverint, multo ultra quam quod putabatur fieri posse a quoquam in eorum circumstantiis posito; fuerintque plane capaces acquirendi (si plenius exculti) ultiorem cognitionem quæ possit

scripto impertiri."—See Wallisii *Opera Mathemat.* vol. iii. p. 696. Also his *Letter to Mr. Beverley*, in the *Transactions of the Royal Society of London for* 1698. I am obliged to quote from the Latin version, not having the *Philosophical Transactions* at hand.

After having thus paid the tribute of my sincere respect to the enlightened and benevolent exertions of a celebrated foreigner, I feel myself called on to lay hold of the only opportunity that may occur to me, of rescuing from oblivion the name of a Scottish writer, whose merits have been strangely overlooked both by his contemporaries and by his successors. The person I allude to is George Dalgarno, who, more than a hundred and thirty years ago, was led by his own sagacity to adopt, *a priori*, the same general conclusion concerning the education of the dumb, of which the experimental discovery, and the happy application, have, in our times, reflected such merited lustre on the name of Sicard. I mentioned Dalgarno formerly, in a note annexed to the first volume of the *Philosophy of the Human Mind*, [pp. 486, 487,] as the author of a very ingenious tract entitled *Ars Signorum*, from which it appears indisputably that he was the precursor of Bishop Wilkins in his speculations concerning a Real Character and a Philosophical Language; and it now appears to me equally clear, upon a further acquaintance with the short fragments which he has left behind him, that, if he did not lead the way to the attempt made by Dr. Wallis to teach the dumb to speak, he had conceived views with respect to the means of instructing them, far more profound and comprehensive than any we meet with in the works of that learned writer, prior to the date of Dalgarno's publications. On his claims in these two instances I forbear to enlarge at present; but I cannot deny myself the satisfaction of transcribing a few paragraphs, in justification of what I have already stated, with respect to the remarkable coincidence between some of his theoretical deductions, and the practical results of the French academician.

"I conceive there might be successful addresses made to a dumb child even in its cradle, when he begins *risu cognoscere*

matrem ; if the mother or nurse had but as nimble a hand, as commonly they have a tongue. For instance, I doubt not but the words *hand, foot, dog, cat, hat,* &c., written fair, and as often presented to the deaf child's eye, pointing from the words to the things, and *vice versa,* as the blind child hears them spoken, would be known and remembered as soon by the one as the other. And as I think the eye to be as docile as the ear; so neither see I any reason, but the hand might be made as tractable an organ as the tongue; and as soon brought to form, if not fair, at least legible characters, as the tongue to imitate and echo back articulate sounds. . . . . "The difficulties of learning to read, on the common plan, are so great, that one may justly wonder how young ones come to get over them." . . . . Now, the deaf child, under his mother's tuition, passes securely by all these rocks and quicksands. The distinction of letters, their names, their powers, their order, the dividing words into syllables, and of them again making words, to which may be added Tone and Accent; none of these puzzling niceties hinder his progress. . . . . It is true, after he has past the discipline of the nursery, and comes to learn grammatically, then he must begin to learn to know letters written, by their figure, number, and order," &c. &c.

The same author elsewhere observes, that "*the soul can exert her powers by the ministry of any of the senses: And, therefore, when she is deprived of her principal Secretaries, the Eye and the Ear, then she must be contented with the service of her lackeys and scullions, the other senses; which are no less true and faithful to their mistress, than the eye and the ear; but not so quick for dispatch.*"

I shall only add one other sentence, from which my readers will be enabled, without any comment of mine, to perceive with what sagacity and success this very original thinker had anticipated some of the most refined experimental conclusions of a more enlightened age.

"My design is not to give a methodical system of grammatical rules, but only such general directions, whereby an industrious tutor may bring his deaf pupil to the vulgar use

and ὅτι of a language; that so he may be the more capable of receiving instruction in the διὰ ὅτι from the rules of grammar, when his judgment is ripe for that study: Or, more plainly, I intend to bring the way of teaching a deaf man to read and write, as near as possible, to that of teaching young ones to speak and understand their mother-tongue."

In prosecution of this general idea, he has treated, in one very short chapter, of a *Deaf Man's Dictionary;* and in another, of a *Grammar for Deaf Persons;* both of them containing (under the disadvantages of a style uncommonly pedantic and quaint) a variety of precious hints, from which, if I do not deceive myself, useful practical lights might be derived, not only by such as may undertake the instruction of such pupils as Mitchell or Massieu, but by all who have any concern in the tuition of children during the first stage of their education.

The work from which these quotations are taken, is a very small volume, entitled "*Didascalocophus; or, The Deaf and Dumb Man's Tutor*, printed at the Theatre at Oxford, 1680." As I had never happened to see the slightest reference made to it by any subsequent writer, I was altogether ignorant of its existence, when a copy of it, purchased upon a London stall, was a few years ago sent to me by a friend, who, amidst a multiplicity of more pressing engagements and pursuits, has never lost sight of the philosophical studies of his early years. I have been able to learn nothing of the author but what is contained in the following slight notice, which I transcribe from Anthony Wood. "The reader may be pleased to know, that one George Dalgarno, a Scot, wrote a book, entitled *Ars Signorum*, &c., London, 1660. This book, before it went to press, the author communicated to Dr. Wilkins, *who, from thence taking a hint of greater matter*, carried it on, and brought it up to that which you see extant. This Dalgarno was born at Old Aberdeen, and bred in the University at New Aberdeen; taught a private grammar school with good success for about thirty years together, in the parishes of St. Michael and St. Mary Magdalen in Oxford; wrote also, *Didascalocophus; or, The Deaf and Dumb Man's Tutor;* and dying of a fever,

on the 28th of August 1687, aged sixty or more, was buried in the north body of the church of St. Mary Magdalen."—*Ath. Oxon.* vol. ii. pp. 506, 507.

The obscurity in which Dalgarno lived, and the complete oblivion into which his name has fallen, are not a little wonderful, when we consider that he mentions among the number of his friends Dr. Seth Ward, Bishop of Sarum; Dr. John Wilkins, Bishop of Chester; and Dr. John Wallis, Professor of Astronomy at Oxford. It is still more wonderful, that no notice of him is taken in the works either of Wilkins or of Wallis, both of whom must have derived some very important aids from his speculations.

This unfairness on the part of Wilkins has not escaped the animadversion of one of his own biographers. "In the prefatory epistle (he observes) to the *Essay towards a Real Character*, Dr. Wilkins mentions several persons who assisted him in this work, particularly Willoughby, Ray, and Dr. William Lloyd and others; but it is remarkable that he does not mention Dalgarno, and the more, because Dr. Wilkins's own name is printed in the margin of King Charles II.'s letter prefixed to Dalgarno's book, as one of those who informed his Majesty of Dalgarno's design, and approved it, as a thing that might be of singular use to facilitate an intercourse between people of different languages; which prevailed with his Majesty to grant his said letters of recommendation to so many of his subjects, especially of the Clergy, as were sensible of the defectuousness of art in this particular."—*Biog. Britan.* Art. Wilkins.[1]

[1] In Grainger's *Biographical History of England*, mention is made of a still earlier publication than the *Ars Signorum*, entitled, "*The Universal Character, by which all Nations in the World may understand one another's conceptions, reading out of one common Writing their own Tongue.* By Cave Beck, Rector of St. Helen's, in Ipswich, 1657." This book I have never seen.

The name of Dalgarno (or Dalgarus, as it has been sometimes written) is not altogether unknown on the Continent. His *Ars Signorum* is alluded to by Leibnitz on various occasions, and also by Fontenelle in the *Eloge* of Leibnitz. His ideas with respect to the education of the Dumb, do not seem to have attracted any notice whatever. In fact they were much too refined and enlightened to be duly appreciated at the period when he wrote. [For an account of the earlier attempts at educating the Deaf and Dumb, see *Discussions on Philosophy*, &c. 2d ed. pp. 178-183.—*Ed.*]

That Dalgarno's suggestions with respect to the education of the Dumb, were not altogether useless to Dr. Wallis, will I think be readily admitted by those who take the trouble to compare his *Letter to Mr. Beverley* (published eighteen years after Dalgarno's treatise) with his *Tractatus de Loquelâ*, published in 1653. In this Letter some valuable remarks are to be found on the method of leading the dumb to the signification of words; and yet the name of Dalgarno is not once mentioned to his correspondent.

If some of the details and digressions in this note should be censured, as foreign to the principal design of the foregoing Memoir, I can only plead in excuse, my anxiety to do justice, even at the distance of a century, to the memory of an ingenious man, neglected by his contemporaries, and already in danger of being totally forgotten by posterity. To those whose curiosity may lead them to study his book, the originality of his conceptions, and the obvious application of which some of his principles admit to the peculiarities of the case now before us, will of themselves suggest a sufficient apology.

SOME ADDITIONAL COMMUNICATIONS RELATIVE TO JAMES MITCHELL, RECEIVED AFTER THE FOREGOING MEMOIR WAS READ IN THE ROYAL SOCIETY.

No. I.—*Extract of a Letter from* Dr. Gordon *to* Mr. Stewart.

Edinburgh, March 30, 1812.

. . . . A few days after you returned to the country, I wrote to a friend of mine near Forres, putting several queries respecting Mitchell, which I requested him to get answered by Miss Mitchell if possible. I wished in particular to be satisfied as to the lad's behaviour on his father's death, as what I had myself seen of his conduct at the funeral, had led me to differ from Mr. Glennie's information on this point. From

Miss Mitchell *directly*, I have obtained the following curious particulars:

At his sister's request, Mitchell was allowed to touch his father's body. As soon as he felt it, he shrunk away. This was the first time he had ever touched a dead *human* body. He has been seen amusing himself with a dead *fowl;* placing it repeatedly on its legs, and laughing when it fell.

He has not shown any signs of grief in consequence of his father's death.

When a tailor was brought to make a suit of mournings for him, the boy took him into the apartment where his father had died, stretched his own head and neck backwards, pointed to the bed, and then conducted him to the church-yard, to the grave in which his father had been interred.

Being lately very ill, he was put into the same bed where his father had died. He would not lie a moment in it, but became quite peaceable when removed to another.

On one occasion, shortly after his father's death, discovering that his mother was unwell, and in bed, he was observed to weep.

Three months after the death of his father, a clergyman being in the house, on a Sunday evening, he pointed to his father's Bible, and then made a sign that the family should kneel.

Lately, his mother being from home, his sister allayed the anxiety he showed for her return, by laying his head gently down on a pillow, once for each night his mother was still to be away; implying, that he would sleep so many times before her return.[1]

[1] It would appear that this is the sign which Miss Mitchell usually employs on similar occasions; and the ready interpretation of it by her brother, implies, on his part, no inconsiderable a share of shrewdness and of reflection. I copy the following parallel incident from a paper of Mr. Wardrop's now before me.—(D. S.)

"When his new clothes were all made, I solicited his father not to allow him to put them on, until I was present. It was signified to him accordingly, that in two days he should have them. This was done by shutting his eyes, and bending down his head twice, in order to intimate to him, that he must first have two sleeps."

Whilst he was last in London, he happened to be in the house of a friend of his father's, who was in the habit of smoking; and a pipe being given him, he smoked it, and seemed much delighted. Some little time ago, a gentleman came on a visit to Ardclach, who was also in the habit of smoking, and having tobacco, wished for a pipe. Miss Mitchell gave the boy a halfpenny, and permitted him to smell the tobacco. He understood her signs; went out to a shoemaker's house in the neighbourhood, where pipes were to be had, and returned with one only in his hand. They suspected that he had another about him, and giving him to understand as much, he at last unbuttoned his waistcoat, and, laughing heartily, brought out the second pipe. The Sunday after this occurrence, when his sister gave him a halfpenny, as usual, in church, to put into the poors'-box, he immediately placed the halfpenny between his teeth, like a pipe, and laughed; but his sister checking him, he dropped it into the box.

He is still fond of the trick of locking people into the house or the stable. The patron of the parish, Mr. Dunbar Brodie, (a gentleman who, I have reason to believe, has exceeded all others in acts of substantial kindness to the Mitchell family,) happening lately to visit Ardclach, young Mitchell contrived to make him a prisoner in this manner for a few minutes, laughing and jumping about all the while. On this particular occasion, it was noticed, that he applied his eye to an aperture in the door of the stable, as if to observe the motions of the person within. But although my friend writes me, that the other day upon holding out his hand to Mitchell, the boy took hold of it; it cannot be conceived, that his sight should have suddenly so much improved, as to enable him to see any object in a dark stable, through a hole in the door, without the improvement being extremely obvious in other instances.

No. II.—*A Series of Questions respecting* JAMES MITCHELL, *proposed by* Mr. GLENNIE, *and answered by* Miss JANE MITCHELL.[1]

Q. 1. Did Mr. Wardrop operate on the eyes only? or on the ears also?

A. Mr. Wardrop operated only on the right eye.

Q. 2. Were the drums of the ears pierced during the first or the second visit to London?

A. The drums of the ears were pierced during the first visit; the one by Mr. Astley Cooper, the other by the late Mr. Saunders of the London Dispensary.

Q. 3. Was it the case, that a musical instrument was playing in the room when his ears were pierced? and did he attend to it?

A. Some days after his ears were pierced, in a friend's house, he applied his ear to a violin, and the sound seemed to afford him pleasure.[2]

[1] Although some of the information contained in this paper has been already anticipated in the communications of Dr. Gordon and of Mr. Wardrop, I have thought it proper to insert it here at full length; on account not only of the new light which it throws on various very interesting and important points, but of the high authority which it derives from Miss Mitchell's name.—(D. S.)

[2] The following particulars are mentioned by Mr. Wardrop with respect to the state of Mitchell's deafness at the time when he saw him in London.—(D. S.)

. . . . "When a ring of keys was given to him, he seized them with great avidity, and tried each separately, by suspending it loosely between two of his fingers, so to allow it to vibrate freely; and after tingling all of them amongst his teeth in this manner, he generally selected one from the others, the sound of which seemed to please him most. This, indeed, was one of his most favourite amusements, and it was surprising how long it would arrest his attention, and with what eagerness he would on all occasions renew it. Mr. Brougham, having observed this circumstance, brought to him a musical snuff-box, (a French trinket, containing a small musical instrument, which played airs by means of a spring,) and placed it between his teeth. This seemed not only to excite his wonder, but to afford him exquisite delight, and his father and sister, who were present, remarked, that they had never seen him so much interested on any former occasion. Whilst the instrument continued to play, he kept it closely between his teeth, and even when the notes were ended, he continued to hold the box to his mouth, and to examine it minutely with his fingers, expressing by his gestures and by his countenance great curiosity." [This capacity of hearing by the teeth, or rather through the *meatus auditorius internus*, has been developed, by Father Robertson of Ratisbon, into a mean of educating the Deaf and Dumb.—*Ed.*]

Q. 4. Does he show a strong desire to examine *all* objects by feeling?

A. He does: small objects he applies to his teeth, and feels with the tip of his tongue; larger objects he feels with his fingers carefully.

Q. 5. Is he much gratified with a *new* object?

A. Some objects do not seem to attract his attention; others do; and, where there is any mechanism, he endeavours, by handling them, to find it out: he discovers a particular fondness for locks and keys.

Q. 6. Does he discover any preference to the handling of smooth, rough, or pointed things?

A. If he does any, it is to smooth objects; when he gets a bit of rough wood, he endeavours to smooth it with his teeth, or causes the boy who attends him to smooth it with a knife.

Q. 7. Is he fond of bodily exertion?

A. He is extremely fond of running, walking, and riding.

Q. 8. Does he discover any sense of danger?

A. He discovers a sense of danger from fire, water, and sharp instruments.

Q. 9. Is it necessary to follow him, to keep him from harm?

A. It is only necessary to follow him, to prevent him from wandering.

Q. 10. Has he the knowledge of the use of things?

A. He knows the use of all common things, and is pleased when the use of any thing with which he is not acquainted is communicated to him.

Q. 11. Has he learned to do any kind of work?

A. He has not; further than to assist any of the farm-servants, for whom he may have conceived an attachment, in any work in which they may be engaged; particularly in cleaning the stable. He has endeavoured to repair breaches in the farm houses; and has attempted to build small houses with turf, leaving small openings resembling windows. Means have been used to teach him to make baskets; but he wants application to finish anything.

Q. 12. Does he go from home? and is he fond of doing so?

A. His greatest pleasure seems to consist in wandering from home, but he always returns to his meals.

Q. 13. Is he uneasy when separated from his friends or attendants?

A. He discovers much uneasiness when separated from his friends, but does not *now* discover uneasiness when he changes his attendants, though he did, very early in life.

Q. 14. Does he love to associate with boys, and engage in play?

A. He never associates with boys, nor discovers any inclination to join in their amusements; but sometimes wishes the boy who attends him, to assist him in floating objects on the water, &c. He is, however, fond of young children, and takes them up in his arms.

Q. 15. Has he any uneasy feeling of his unfortunate situation?

A. He is sensible that his sight is imperfect, but does not discover any uneasy feeling of his situation.

Q. 16. Is he sensible of loud sounds? or of music?

A. Of *very* loud sounds he is, and seems uneasy at the time.

Q. 17. Does he apprehend the distinction of ranks in society?

A. He prefers persons who are well dressed, to those who are not; and would not willingly eat any food in the kitchen.

Q. 18. Has he the sense of ridicule?

A. In some degree he no doubt has: for instance, he takes pleasure in locking the door on people, and confining them; and, if treated in the same manner himself, seems amused, but if too much teased, is irritated.

Q. 19. Has he any devotional feelings?

A. He cannot possibly have any; but sits quietly in church, and kneels at family-prayers.

Q. 20. Has he the sense of right and wrong?

A. He undoubtedly has; and if gentle means are used to make him sensible of his having done wrong, he shows sorrow, but if harshly treated, is irritated.

No. III.—*Letter from* Dr. Gordon *to* Mr. Stewart.

Edinburgh, October 26, 1812.

My dear Sir,—During my residence in Morayshire in August last, I did not fail to avail myself of my vicinity to Ardclach, to visit the Mitchell family. I have now to communicate to you, according to promise, the additional particulars respecting the subject of your Memoir, which this visit has enabled me to collect. Some of these you will easily perceive are the result of my own observation on the boy himself; others were obtained from conversations with his eldest sister, whom I considered myself extremely fortunate in finding at home.

Previously to my visit, report had given me reason to expect that I should find young Mitchell's vision considerably improved; and I had not been long in his company, before I received very satisfactory proof that this was the case. Accordingly, I was led to examine his eyes with attention. Twelve months ago, as I have stated in the supplement to Professor Glennie's Account, one could perceive fragments of the lens very white and opaque, behind one-half of the pupil of each eye; and through the other half, a slighter opacity, or a sort of greyish appearance, in the parts situated farther back. The only change which I could discover, sufficient to account for the improvement which has taken place in his vision, is a diminution in this *slighter opacity* in both eyes. At present there is a very white fragment of the lens, behind the upper half of the pupil of the right eye; and behind the lower half, the humours appear almost perfectly black. In the left eye there is a dusky-white opacity behind the lower and inner half of the pupil; and behind the upper and outer half, the humours are of a dark grey. The pupils contract and dilate as usual, on varying the quantity of light.

It is not easy to determine the exact degree of vision which he now enjoys. He sees those bodies only which have considerable brightness, or dark-coloured bodies placed on a bright

ground. Consequently, of the various objects which usually surround him, he sees such only as are not very minute, and are placed within a short distance of his eyes. He could distinguish a crown-piece at the distance of two or three feet, and a person's face at the distance of six. But it seems obvious, that he does not perceive distinctly the *limits* of any object, however bright: for, as soon as, guided by his own obscure vision, he has reached anything with his hands, he no longer regards it with his eyes; but, as if he were yet totally blind, examines it solely with his fingers, tongue, lips, and nose.

That he can now distinguish differences in the kinds of light or in colours, seems very evident from an amusement in which, his sister told me, he sometimes indulges,—matching bodies of the same colour together. One day, for example, having a bunch of the flowers of wild mustard in his hand, he was observed to approach an officer who was near him, and, with a smile, placed the flowers in contact with the yellow part of his epaulette. Frequently, too, he is seen gathering in the fields a number of flowers of the same kind; the blue-bottle, for example, or the corn-poppy, or the marigold. It appears, however, that it is only the brighter colours he is capable of distinguishing; and of these *red* seems to be his favourite. A red object attracts his notice more, and he looks at it longer, than any other. Of the female parishioners who pass the manse on their road to church on Sunday, he is most apt to follow those who are dressed in red cloaks. Miss Mitchell is of opinion, that he rather dislikes darkness; for she has observed, that in moving from one part of the house to another after night has come on, his step is hurried, and that he seems happy in reaching an apartment where there is a candle or a fire.

I observed that he judges of the *direction* of a body by sight, with invariable accuracy; but when an object whose real magnitude is not known to him, is placed before his eyes, he does not seem capable of estimating its *distance*, for the first time, with any degree of correctness. When I held a silver snuff-box about two feet from his face, he put out his hand exactly

in the *direction* of the box, but moved it forwards very gradually until it came in contact with it. These circumstances are just what we should before-hand have expected to find; and such also, I imagine, as may be remarked of all persons who are nearly blind from a similar cause. The perception of the *direction* of bodies, which obviously depends on the particular part of the retina which is affected by the rays they emit, may be obtained equally (if the bodies be seen at all) from the weakest as from the most perfect vision. But Mitchell's vision is too obscure to enable him to perceive those *minute differences in the colour and intensity of light*, by which persons having perfect sight, judge of the *relative distance* of luminous bodies.

On the whole, it appears obvious, that his sight, although yet far too imperfect for any attempt to address him in a *visible language*, is considerably improved within these last twelve months. Did the boy's dispositions admit of it, I should now be inclined to recommend still more earnestly than before, that another attempt should be made to remove the cataracts from his eyes, and I am much less disposed than formerly to fear that there is any radical imperfection in the optic nerves. Here it may not be improper to mention, that his sister is convinced that he sees some objects better by moon-light than during the day; a circumstance which seems to show that the opacity in his eyes is, as in other cases of cataract, merely local; so that when the pupil is much dilated, some rays of light reach the retina, through those more transparent parts of the humours which are farther distant from the axis of vision than the portion that is opaque.

His powers of *Hearing* remain as imperfect as ever. He still continues the practice of striking hard bodies against his teeth; but on further reflection, I think it not unlikely that he may have another object in view in this experiment, besides that of procuring a sensation of sound. It is not at all improbable, that he discovers differences in the hardness of bodies in this manner. For there is a very distinct sensation felt towards the roots of the teeth themselves, when they are struck

with a hard substance, resulting probably from an affection of the nerves of the membrane lining their inner cavity, and this sensation is different according to the hardness of the body. I have little doubt that he could, by this kind of feeling alone, very easily discover that lead was softer than steel, and steel harder than ivory; although all these substances would feel equally hard to his proper organs of touch. But even supposing that he does not avail himself of this sensation in the teeth themselves, it is probable that he strikes bodies against these organs, not so much to try whether they will cause sound at all, as to observe what *kind* of sounds they will emit; from which he may infer various other properties, which experience has taught him are invariably connected with the particular sounds emitted.

His manner of examining any object that is new to him, is precisely the same now that it was four years ago, when I first saw him. When it is put into his hand, he runs it over with the points of his fingers; then applies it to his mouth, and insinuates his tongue into all its inequalities, thus using it as an organ of Touch as well as Taste; and, lastly, if it is a body that admits of it, he rattles it between his teeth. All this is done with singular rapidity. In fact, he loses but little time, in discovering, by the actual use of his organs of touch, taste, and smell, those qualities of bodies which we are content to infer from their visible appearance alone.

His sense of smell is unquestionably extremely acute. But I have not been able to learn any fact which could lead me to believe, that he could, in a room at least, discover a person by this sense alone, at the distance of twelve feet. It has been said, that he could follow the footsteps of another person for two miles, guided merely by smelling. But his sister assures me, that there is no foundation for this report. As to a power of determining the *direction* of an object, by some *distinct quality* in its odour, like that quality in sound by which we discover the direction of a sounding body, I could not perceive that he enjoyed any such power more than other persons. Indeed it is not likely that his faculties should differ in kind

from our own, however much they may in number and degree.[1]

Since his sight has begun to improve, his excursions have become bolder and more extensive. He has sometimes wandered upwards of three miles from home. In all these expeditions, he proceeds in a great measure without a guide. But a boy is appointed to follow him, and keep him constantly in view; and Mitchell has the good sense, when he perceives anything which he imagines to be a serious obstacle in his way, to wait until his little follower comes up to his assistance.

Lately, on the road near the manse, he met a person, riding on a horse which had been bought a few weeks before from his mother; and on coming up to the animal, and feeling it, he seemed instantly to recognise it. The person immediately dismounted, in order to see how Mitchell would behave; and he was much amused to find, that he led the horse to his mother's stable, took off his saddle and bridle, put corn before him, and then withdrew, locking the door, and putting the key in his pocket.

When he wishes to communicate his ideas to any one near him, he uses *natural signs;* and it is curious to observe, that most of these signs are addressed to the *sight* of those with whom he converses. This fact, it appears to me, shows very clearly, that he is aware that the powers of vision enjoyed by others are superior to his own; and hence it is not unreasonable to hope, that his reflecting on his inferiority in this respect, when his reason has become more matured, may be the means of inducing him to submit, more placidly than he has hitherto done, to any endeavours for the improvement of his sight.

[1] Hic Adolescens, annum nunc agens xviii, optimâ semper usus valetudine, vegetus est, et admodum robustus: quin et solitâ ætate pubescere visus est, partibus genitalibus ut in viris se habentibus; neque dubitari potest quin brevi futurus sit ἰσπώγων, labiis et mento densâ jam inumbratis lanugine. Curiosè autem percontanti, famuli et amici (masculini scilicet sexûs, quos solos de his rebus interrogare fas erat,) omnes mihi testabantur nihil se observâsse, unde colligerent illum Veneris stimulum unquam sensisse, vel differentiæ sexûs notionem habuisse.

The reader may compare this paragraph with a Latin note of Dr. Hibbert's, in his *Account of David Tait.*

The following are a few examples of his signs. As soon as I began to examine his eyes, opposite to a window, he turned towards his sister, and stretched out his arm to its full extent laterally from his body. This, his sister informed me, is his usual sign for *London*. It is obviously the natural expression of distance; and there is no need of pointing out the association which must have led him to use it on this occasion. When he would express that he has been on horseback, he raises his foot, and brings the fingers of each hand together under the sole, in imitation of a stirrup. He places his hand on his mouth to signify his wish for food; and when he would go to bed, he inclines his head sideways, as if to lay it on a pillow. When I arrived at Ardclach, young Mitchell was not at home; he had wandered to the shoemaker's, several hundred yards distant, where he was sitting in anxious expectation of a pair of new shoes. He was brought to the manse; but after he had remained with us contentedly in the dining-room for about half an hour, he showed an anxiety to get away; and as he moved towards the door, he made use of a sign, from which no one could fail to discover whither he was going. It was an exact imitation, with his arms, of a shoemaker's motion when he pulls his thread.

All the signs employed by others, in order to convey ideas to him, are addressed to his organs of *touch*. The most important, certainly, of these signs, are those which his sister has invented, to express her approbation or disapprobation, her assent or dissent. Miss Mitchell's explanation of them is extremely satisfactory. Her brother has always been particularly attached to her, and she has always had most influence over him. He courts her good opinion. When she would signify to him her *highest approbation* of his conduct, she pats him much and cordially on the head, back, hand, or any other part of the body. This expression more sparingly and less fervently bestowed, signifies *simple assent;* and she has only to refuse him these signs of her approbation entirely, and to repel him gently, to convey to him in the most effectual manner the notice of her *displeasure*.

When I suggested to Miss Mitchell that it would be a highly interesting task, though doubtless a difficult and tedious one, to teach her brother the meaning of *written words*, and mentioned briefly the outlines of a plan for that purpose; she expressed the utmost willingness to undertake any attempt of this kind, but anticipated the chief obstacle to the design from his want of application. Still I cannot help thinking, that this obstacle would probably diminish, as soon as he felt the magic power of a few words. Perhaps a trial might be made according to some such plan as the following.

First, young Mitchell might be provided with a *horn-book*, on which the letters of the alphabet have been cut *in relief*. His sister might then begin, by tempting him with the prospect of some article of luxury—a piece of sugar, for example, or a toy; but before gratifying him with the possession of it, she might take hold of his fore-finger, and conduct the point of it over all the letters composing the name of the article. This being frequently repeated, I have little doubt that he would soon point to the same letters when the same object was held in prospect; and at last, use the sign to procure the luxury. Were one step of this kind gained, it is not unreasonable to expect, that he might in time be made to understand the meaning of every word in our language, whether expressive of one or many ideas. Such words are of course excepted, as express ideas which he cannot possibly have experienced, from the imperfections of his sight and hearing. An advantage would attend the use of the *horn-book* proposed, that if the letters were painted black, Mitchell might communicate by means of it with persons at a considerable distance. Supposing him to have acquired a language of this kind, two others, if necessary, might afterwards be connected with it. The first would consist in tracing the letters of words on the palm of his hand, with the point of one's finger; and the second, of the common speech on the fingers. But how great an acquisition would the principal language alone be, without any such auxiliaries!

Several circumstances occurred, during my visit, which show how perfectly susceptible he is of pleasure from joking or play-

ing with him, or from anything ludicrous in the ideas communicated to him. Twice or thrice, when his sister perceived that he was crossing the room to go away, she stepped to the door unperceived by him, to prevent his escape. When he found her there before him, he stepped back smiling, and seemed to take this sort of teasing in perfect good humour. I had given him my whip, with which he seemed pleased; and once or twice his sister took him by surprise, and pulled it smartly out of his hand. He immediately showed by his smiles that he knew who had robbed him; and quickly catching his sister, he endeavoured to wrest the whip from her. The joke obviously amused him very much; but Miss Mitchell assured me, that it would have given him offence to have repeated it more frequently. An uncommonly large Newfoundland dog, belonging to a gentleman who accompanied me, had got into the room; and nothing could be more expressive of surprise than young Mitchell's countenance, when he first felt this animal. His sister observing this, immediately, with great quickness, took hold of his arm, and stretched it above his head, a sign which, it seems, he uses to denote *mounting a horse*. He instantly understood her meaning, and laughing, made a motion as if he would bestride the dog.

New clothes are still among Mitchell's greatest sources of delight. After his measure has been taken, it would seem that every hour is full of anxiety until the new suit is in his possession. Nothing else appears to occupy his mind. He literally persecutes the tailor or the shoemaker, until his shoes or his coat is finished. He is their guest morning, noon, and night, until the last stitch is drawn.

Before leaving Ardclach, I took an opportunity of conversing very fully with Miss Mitchell relative to her brother's conduct at the period of his father's death. Her answers to my inquiries on this point, corresponded exactly with the information she was so kind as communicate to me through my friend Mr. Lauder Dick of Relugas, in March last, and which I transmitted to you immediately on receiving it. She told me, that when her brother was permitted, by her direction, to touch his father's

dead body, he shrunk from it with surprise, but without expressing the slightest signs of sorrow. She assures me, also, that he felt the body after it was placed in the coffin, but without betraying any emotions of grief. On the evening, however, after her father's funeral, she herself saw him go down to the grave, and pat the turf with *both* his hands; but whether he did this from affection, or intended it merely as an imitation of *beating down the turf*, she feels unable to decide, as she was not near enough to him to discern the expression of his countenance. For several days afterwards, it would appear that he returned repeatedly to the grave; but gradually discontinued his visits. It is worthy of remark, however, that he has regularly attended every funeral that has since taken place in the same churchyard. The report, therefore, which I have stated at the conclusion of the supplement to Professor Glennie's Account, of his having shed tears over his father's grave, seems entirely without foundation. Miss Mitchell authorizes me to say, that neither on this nor on any other occasion, has she *herself* seen her brother show any unequivocal marks of sorrow for his father's death. Yet her friend, the Reverend Mr. Campbell of Ardersier, lately informed her, that he saw her brother standing in the porch shedding tears, immediately after quitting the apartment in which his father's body was lying previous to the funeral.

On the whole, however, I have not been able to discover the slightest reason for altering the opinion I have always entertained respecting the state of young Mitchell's feelings on the day of the funeral. It was my strong conviction of the truth of this opinion, and thinking that Professor Glennie might have been furnished with the materials of his account from some one who had not enjoyed the same opportunity of judging as myself, that led me in the supplement to that account, to doubt in some degree the accuracy of his information on this point. I have since found, however, that the whole of Professor Glennie's memoir was communicated by my friend Mr. Macfarlane, who was present, as well as myself, on that melancholy occasion. I would now observe, therefore, that though I

am sorry to differ in opinion from a gentleman who has written so able a detail of some other parts of Mitchell's history, my perfect knowledge of his candour and liberality embolden me to say, that I think he is mistaken in this particular; and that he has interpreted into expressions of grief in young Mitchell, what were merely expressions of curiosity. On this subject I have communicated with my friends Mr. Lauder Dick of Relugas, Mr. Smyth of Earlsmill, and the medical attendant of the family, Mr. Straith, surgeon at Forres,—gentlemen who also were present at the funeral, and who are more familiar even than I am with young Mitchell's countenance and expression; and I find, that their opinion coincides exactly with mine. His motions at the coffin were equally visible to us all. But we did not attribute his placing his arms around it, to any emotion of sorrow, of which there appeared to us not the slightest trace in his countenance, but to the same motive that led him, the very next moment, to trip lightly towards us, and smilingly feel our clothes all over—the pleasure he experienced in the examination of objects that were new to him. My friend Mr. Lauder Dick, who has accompanied me in all my visits to Ardclach, and whose interest in the family, and kindness towards them, have been equally great, has favoured me with a few remarks, in a letter on this subject, which appear to me so just, that I shall take the liberty to quote them:—"From my observations," he writes, "made at the time, with all the attention which an extreme interest in the boy could excite, my opinion certainly is, that he was occupied with the coffin merely as being a body of a shape and surface different from any thing he had before met with; and that he betrayed no emotions of grief. When the procession moved onwards, all his gestures seemed more those of a playful boy in good spirits, than those of an afflicted youth, conscious of the awful change which had taken place upon his parent. As it is certain that he had never felt a dead body, nor had any opportunity of learning the object of burial before; it appears to me, that we cannot imagine him to have experienced any emotion of grief at his father's funeral, without also supposing him to

have had an innate idea of death.—I am, my dear Sir, with great regard, yours truly, JOHN GORDON."

Postscript.—Before sending you this letter, I transmitted a copy of it to Miss Mitchell, for her perusal and correction; and I have much pleasure in adding the following extracts from her very obliging and satisfactory reply.

"Agreeably to your request, I have read your letter to Mr. Stewart with as much attention as the short time it has been in my possession would admit of; and I certainly think you have stated those facts I informed you of, respecting my brother, most correctly.

"My brother seems to be very well pleased with his change of residence,[1] and goes on much in the same way he did at Ardclach; that is to say, wandering for several miles round the small town we live in, or amusing himself by visiting the different carpenters' or other tradesmen's shops within his reach, and handling their implements, or trying to discover what they are engaged about. He has not yet discovered any anxiety to return to Ardclach, and is, I think, quite as happy as when there."

No. IV.

While employed in revising this concluding sheet, I had the pleasure of receiving the following letter from my friend Sir James Mackintosh. It is unnecessary for me to mention the satisfaction I feel in attracting that notice to the subject of my memoir which his name cannot fail to ensure.

Letter from SIR JAMES MACKINTOSH *to* MR. STEWART.

Edinburgh, 5th November 1812.

MY DEAR SIR,—In consequence of our conversation at Kinneil in August, I called on Mrs. Mitchell after my arrival in

[1] Mrs. Mitchell and her family have, within these few months, left Ardclach to reside at Nairn.

Nairnshire, and on the 9th of October I had an interview with James Mitchell, and his sister Miss Mitchell, which lasted for several hours. I directed my inquiries to every point which seemed important, in the corporeal or mental state of this unfortunately interesting young man.

The result, however, is little more than a needless corroboration of the accounts which you have already received; especially those from Dr. Gordon, who seems to have conducted his observations with much philosophical discernment and accuracy.

During the vacancy in his father's parish, the parishioners assembled on Sunday for public worship and mutual instruction, and one of the elders prayed with a loud and shrill voice, which was observed to give great uneasiness to Mitchell. This occurred several times, so that there appears no reason to consider it as an accidental coincidence.

Though his ordinary conduct be decorous, it seems to be influenced by habit and instruction rather than by feelings of delicacy. When the females of his family are undressing, he has been observed to turn aside. There are no males in the house. But in an opportunity which has lately occurred, he has been thought to show a similar disposition in the case of males.

I have seldom seen an imperfection of the senses attended by so little an air of defect in the countenance. Singular as it may seem, I should even venture to call his features intelligent. He handled every part of the room in which we sat, with indications of an inquisitive mind.

His sister is a young woman of most pleasing appearance and manners, distinguished by a very uncommon degree of modesty, caution, and precision, in her accounts of him; and probably one of the most intelligent, as well as kindest companions, that ever guided a being doomed to such unusual, if not unexampled privations.

You will not think me fantastic for adding, that the habitual exercise of ingenious benevolence seems to me to have left its traces on her countenance, and to have bestowed on her naturally agreeable features, an expression more delightful than

beauty. Her aversion from exaggeration, and her singular superiority to the pleasure of inspiring wonder, make it important to the purposes of Philosophy as well as of Humanity, that she should continue to attend her brother. Separation from her would indeed be an irreparable calamity to this unfortunate youth. By her own unaided ingenuity, she has conquered the obstacles which seemed for ever to preclude all intercourse between him and other minds; and what is still more important, by the firm and gentle exertion of her well-earned ascendant over him, she spares him much of the pain which he must otherwise have suffered from the occasional violences of a temper irritated by a fruitless struggle to give utterance to his thoughts and wishes; disturbed still farther by the vehemence of those gestures which he employs to supply the deficiency of his signs, and released from that restraint on anger which we experience when we see and hear its excesses disapproved by our fellow-creatures.—I am, my dear Sir, with the truest esteem, yours most faithfully,

J. MACKINTOSH.

Supplement to the History of JAMES MITCHELL.

[Some fourteen years later.]

Sept. 12, 1826.

Some time after this Appendix was sent to press, it occurred to me that it might be desirable to obtain some information with respect to James Mitchell's present condition; and if possible an outline of his history since the last intelligence transmitted by the late Dr. Gordon. With this view I requested my friend Mr. Macvey Napier to apply to Sir Thomas Dick Lauder for any particulars concerning Mitchell he might think it worth while to communicate. From the deep interest which that gentleman has always taken in the Mitchell family, and from his well-known habits of philosophical observation, I thought him more likely than any other person to whom I had access, to be acquainted with the circumstances which I was most anxious to learn. I was unwilling to address myself

directly to Miss Mitchell, lest she should have felt it painful to write again on so distressing a subject. Of the obliging readiness with which Sir Thomas has complied with my request, the following communications (for which I beg leave to return both to him and to Miss Mitchell my most grateful acknowledgments) are flattering proofs.

Letter from SIR T. DICK LAUDER *of Fountainhall, Bart., to* MR. PROFESSOR NAPIER.

Relugas, 31st August 1826.

MY DEAR NAPIER,—In obedience to Mr. Stewart's wish, I hasten to convey to you all the information I can procure regarding the very interesting youth James Mitchell; and having just received a very clear and satisfactory letter from his amiable sister, in reply to some queries which I addressed to her immediately on receipt of yours, I think I should be doing injustice to her, as well as the subject, were I to alter or abridge it in any way. I therefore copy it at length for Mr. Stewart's information.

"*Nairn, 28th August* 1826.

"MY DEAR SIR,—I received your much-esteemed favour of the 26th inst. yesterday, and regretted that being Sunday I could not immediately proceed, as far as memory enabled me, to give you an account of anything that had occurred (out of the common routine) in my brother's conduct, during the period marked out by Professor Napier, that is to say, since our lamented friend Dr. Gordon's death. By referring to some letters, I find that some of the most striking incidents regarding him took place prior to that event, and were communicated through him to Mr. Stewart, such as the escape he made from being drowned, and his apparent fear of death during the only severe illness he ever experienced. His conduct at the time of my mother's death, I had the honour of communicating directly to Mr. Stewart, in consequence of your

considering it proper for me to do so.[1] It is therefore only the occurrences that have happened since, that will be new to Mr. Stewart, or the effects these circumstances appear to have had on his actions. Regarding the first mentioned event, as naturally might be expected, it prevented him for some time from visiting the shore altogether; but as the recollection became fainter, he gradually resumed his rambles on the beach. As far, however, as I have been able to learn, he never resumed his station in any of the boats under similar circumstances. Some time after, he made as narrow an escape of another description, which I do not recollect having mentioned, and which has influenced his conduct quite as much. On the day of the coronation of his present Majesty, an additional pair of horses were put to the mail-coach, rode by a postilion unacquainted with James's deficiencies. From this cause, and the crowded state of the street, he was thrown down by the leaders, and was for a second or two literally under them. He was taken up almost insensible, as it appeared from the fright, for when he was stript and examined immediately afterwards by Dr. Smith, he was found to have received no actual injury, except on one hand, which was marked by one of the horse's shoes. Soon after this accident, a gentleman coming into town in a post-chaise, observed him to throw himself on the parapet of the bridge, the moment he became sensible, from the vibration, of the approach of some conveyance, and to remain there until it had passed; and I have invariably noticed since, that he makes a bolt to the nearest side of the street the moment he is warned of the approach of a cart or carriage. I think my mother's death has influenced his conduct, and even softened his temper more than almost any other event in his life, particularly in cases where I am concerned. During her life, when I refused compliance with any little capricious wish or want, he generally made an appeal to her, and that too success-

[1] Several of the letters here referred to have unfortunately been mislaid, and cannot at the present moment be recovered. For an additional communication concerning Mitchell, by Dr. Gordon, see *Transactions of the Royal Society of Edinburgh*, vol. viii. Part First, p. 129. [Read Nov. 20, 1815.]

fully; but since her death, he has scarcely ever attempted asking anything out of the common routine, and if at any time he has done so and been refused, he has taken the first favourable opportunity of getting over his displeasure and becoming friends with me again. For instance, on one occasion on which he had broken his tobacco-pipe before another had become due, he thought he might be allowed to supply himself by some halfpence which chanced to have been left in an open cupboard, and came hanging about me with the broken pipe, and a halfpenny shoved into it; at length, when I found myself obliged to notice him, I quietly signed to him to replace the halfpenny in the cupboard, which he did immediately, but in very ill humour, and left the room, slapping the door after him. However, he returned in a little time with a new pipe, having been more successful in an appeal he had made to some of his out-of-door friends, (of whom he has not a few,) his good-humour perfectly restored, showing me his prize, and apparently expecting me to participate in his pleasure, an expectation which it was *not necessary* for me to disappoint, as what is given by strangers is received merely as an indulgence, but what is once given by me is on every similar occasion exacted as a right, so that I must adhere strictly to rule in everything. I therefore give him a fixed allowance of pipes and tobacco, consisting of two pipes, and about the third of an ounce of tobacco every day, at stated periods. Two days ago he evinced a sense of justice, on one of these occasions, as strong as any I have seen him exhibit. It is usual to give him a new pipe after dinner, and it is generally brought into the room a short time previous. As he knows where it is laid, he sometimes amuses himself with it until dinner comes. On the occasion alluded to, he broke the pipe, either by accident, or from disliking it, and put the tobacco into an old one he had in his pocket. I remarked the action, but took no notice of it until he turned round after dinner as usual for his pipe, when I took the two matches generally given along with it, and put them into his hand, and he very quietly took them, and went and smoked with his old pipe, and did not ask another, until it

became his right in the usual routine after breakfast next morning. The most striking effect my mother's death had on him was the evident fear of losing me also. He actually, for a short time, appeared to be unwilling to quit me even for an instant, and when I did get away from him, he went through every part of the house in quest of me. Even now, though not appearing to labour under the same fear, the efforts he sometimes makes to secure my personal services are really odd. I have known him sit for half an hour and upwards, watching the movements of our servant, until satisfied of her being fairly out of the way, and then come for me to light his pipe, or to render him any other little service, being certain of my immediate attendance in her absence, although I am unwilling to render him so dependent upon me as not to accustom him to receive her services when convenient. When I happen to be from home also for a day or two, all the little repairs which his clothes may require, are kept until I return, or if he has been absent himself, he is almost certain to find out some employment for me immediately on his return; and although these, in themselves, are trivial circumstances, it is only from such that we can, in any degree, judge of what is passing in his mind. He continues to take an unabated interest in the employment of the various workmen in town, and in the progress of their work, particularly mason-work; examining minutely what has been done in his absence, and fearlessly ascending the highest part of their scaffolding, in which he has hitherto been most providentially preserved from any serious accident. While the addition lately made to this house was roofing, I remarked him ascending the slater's ladder, and getting on the roof. Laying himself down, and fixing his heel in a rough part of the surface, he moved himself along, one foot after another, until the fear of his slipping rendered me unable to remain longer to look at him. I believe such is his common practice whenever anything of the kind is carrying on. He is so perfectly inoffensive, that all classes contribute towards his safety, and even to his amusement; allowing him to enter their houses and handle whatever he has a mind to, as he never attempts

carrying anything away with him, nor injuring it while in his possession. Indeed, except in one instance, I never knew him exposed to any unpleasant treatment in these unceremonious visits. It was in the case of a family of the name of ———, who came to reside in this neighbourhood about three years ago, and who were quite unacquainted with his situation. When he went out as usual to the house, (where with the former occupants he had been accustomed to range at pleasure,) and began feeling the umbrellas and other articles in the lobby, with the intent, as they supposed, of carrying them off, they first remonstrated with him, and getting no reply, they then proceeded to turn him forcibly out of doors, which they effected after receiving as many kicks and blows as he could bestow in the struggle. He was afterwards seen, by two gentlemen who knew him, bellowing with rage. They wished to get hold of him and soothe him, but found it impossible from the furious rate at which he was going; and although regretting his apparent irritation, they were not a little amused, upon approaching the house, to see a domestic peeping fearfully out at a half-open door, and the other members of the family, which consisted mostly of females, at the various windows whence they could obtain a view of the person who had been the cause of so much fear and trouble to them. He has given up going to church for the last four years, probably because he found the confinement irksome. When he knows that I am setting out to attend divine worship, he very deliberately puts on his hat, and perhaps accompanies me down the lane; and if I offer it, he gently declines carrying the Bible for me, which he used to do when wishing to go along with me. He generally walks about very contentedly during the morning service, but expects the house to be kept open for him during the afternoon, if at home, which is not always the case, as it is frequently the day he chooses for visiting Ardersier. One day this season, being there earlier than usual, my aunt took him to church with her, but I understand he has since taken care to pay his visit at a later hour. I have thus, as far as my observation or recollection has enabled me, mentioned those particulars that have occurred to me re-

specting him, in the hope that you may be able to select something for Mr. Stewart; and shall not attempt any apology for the manner it is given in, as my only anxiety has been to throw the greatest quantity of matter together in the shortest possible time. James's visit to Relugas has several times occurred to me. The only thing respecting it in which there could be misconception, is the idea of his having thought of paying for his food, as I have never been aware of his having any idea connected with money, farther than its being a possible means of procuring pipes or tobacco for him. I have been told that, upon half-a-crown being given him by some passing stranger, he had gone into a shop and laid it on the counter, and the wished-for articles not being immediately given to him, he had taken it and thrown it to the opposite side of the street, as being utterly worthless. On another occasion, I know he carried home a similar sum, and gave it to the maid-servant, who chanced to be the only member of the family he could meet with. I know you will have the goodness to forgive the liberty I take in alluding to the circumstance. Although yours is the more natural conclusion, yet from all I know of his habits, I consider the action as merely indicative of satisfaction.—I remain, my dear Sir, &c. (Signed) JANE G. MITCHELL."

Addressed, SIR THOMAS DICK LAUDER of Fountainhall, Bart.

Having now given you Miss Mitchell's letter at full length, I shall proceed to detail the circumstances of the visit she alludes to. It was one day about noon, in the month of May last, that I saw him pass the window of the dining-room, where I was sitting, and immediately recognising him, I hastened to the house door, and met him in the porch in the act of entering. I took him by the hand, clapped him gently on the back, and led him to the room I had just left, and taking him towards Mrs. Cumin, who was the only person with me at the time, he shook hands with her. I then conducted him to a sofa, where he sat down, and being apparently a good deal tired, he leaned back in expectation of finding support; but the sofa being one of those constructed without a back, he was surprised, and in-

stantly made himself master of its form by feeling it all over. I then took his hand and put it to his mouth, with the intention of making him understand that he should have something to eat. He immediately put his hand into his waistcoat pocket, where he had some copper, as if with the intention of taking it out. It is to this circumstance that the concluding part of Miss Mitchell's letter refers. My impression was, that he meant to express that he could pay for food if it was given him. Miss Mitchell seems to think that it was an indication of satisfaction merely. I confess, however, that his action appeared to me to be so immediately consequent on mine, that I cannot yet doubt that it resulted from it. He may have misinterpreted my signal, and imagined that it referred to a pipe and tobacco, and this may perhaps reconcile our difference of opinion. I lost no time in ordering luncheon, and in the meanwhile I gave my interesting visitor a segar. He took it in his hand, smelt at it, and then put it into his waistcoat pocket with a smile of infinite satisfaction. I took another segar from the case, and having lighted it, I put it into his hand. He carried it also directly towards his nose, but in its way thither the red glare of the burning end of it caught his eye, (which is perfectly aware of light, although not of form,) and arrested his hand. He looked at it for a moment, turned it round, and having extinguished it between his finger and his thumb, he put it also into his pocket with the air of being much amused. I was then convinced that he had never before met with a segar, and that he knew it only as tobacco. I therefore prepared another, lighted it, smoked two or three whiffs, so as to make him sensible of the odour, and then taking his hand, I put it into it, and guided it to his mouth. He now at once comprehended matters, and began whiffing away with great delight. But the fumes of the tobacco ascending from the burning end of the segar, stimulated his eye, and gave him pain; yet he was not to be defeated by this circumstance; for, retaining the segar between his fore-finger and thumb, he stretched up his middle finger, and keeping his eyelid close with it, he went on smoking, until I judged it proper to remove the end of the segar from his mouth when it

was nearly finished. By this time Lady Lauder came in, and I begged that the children might be brought. I took each of them to him in succession, and he patted their heads; but the ceremony, though tolerated, seemed to give him little pleasure. A tray now appeared, and I led him to a seat at the table. I put a napkin on his knee, and comprehending what he was to be employed in, he drew his chair very close to the table, as if to prevent accident to the carpet, and spread the napkin so as to protect his clothes. I helped him to some broth, and guided his spoon for two or three times, after which I left him to himself, when he leaned over the table, and continued to eat the broth without spilling any of it, groping for the bread, and eating slice after slice of it with seeming appetite. The truth was, he had been wandering for some days, had been at Ardclach, his native place, had had a long walk that morning, and was very hungry. My house, you know, is seventeen miles from Nairn. I then cut some cold meat for him, and he helped himself to it very adroitly with his fork, drinking beer from time to time as he wanted it, without losing a drop of it. After he had finished, he sat for a few minutes, and then he arose, as if he wished to go. I then gave him a glass of wine, and each of us having shaken him by the hand, he moved towards the door, where I got him his hat, and taking him by the arm, I led him down the approach to the lodge. Having made him aware of the obstruction which the gate presented, I opened it for him, led him into the road, and giving his arm a swing in the direction I wished him to take, I shook hands with him again, and he moved away at a good round pace as I had indicated.

Some years ago Mitchell paid a visit to Relugas, but I was unfortunately from home at the time, and as he was known to no one else, his awkward gait occasioned his being mistaken for a drunk or insane person; and the doors being shut against him, he went away. He never repeated his visit until the late occasion; but I am not without hope that the kind treatment he last met with may induce him to come here the next time he takes a ramble. His countenance is so intelligent, and its

expression in every respect so good, that he interested every individual of the family, and delighted us all.

Will you have the goodness to say to Mr. Stewart, with my best compliments, that I consider myself highly honoured by his application to me. I have given him all the circumstances I can at present remember; and I beg you will assure him, that should he have any queries to propose, it will give me great pleasure to satisfy him to the best of my power, and I hope he will have no scruple in commanding my services. Believe me, my dear Napier, ever yours most sincerely,

(Signed) THOS. DICK LAUDER.

After reading the foregoing letters, (the minutest details in which were to me deeply interesting,) I could not help feeling much additional regret at the failure of the plan which I had formed for attempting the farther education of Mitchell. See pp. 333, 336, 337, of this volume. His intellectual capacity (manifested in that prudential sagacity which has been the gradual result of his very limited experience, and still more remarkably in that foresight which enables him to look forward with dread to the possibility of future contingencies) seems to me *now* to be far superior to what I had previously apprehended. How invaluable was the opportunity which has been thus lost of adding to the Natural History of the Human Mind! No exertion certainly was wanting on my part, aided by the cordial co-operation of the Royal Society of Edinburgh, to accomplish the objects we had in view.[1]

[1] [For information in regard to James Mitchell's present state, see Appendix, p. 388.—*Ed.*]

NOTES AND ILLUSTRATIONS.

NOTES AND ILLUSTRATIONS.

TO PART SECOND, SECOND DIVISION.

Note A, p. 141.—*Law of Sympathetic Imitation.*

The following anecdote of Campanella is told by an old French author, who represents himself as having been an eye-witness of the particulars he relates. As I have never happened to see the book in the original, I shall copy the words of the English translator, whose work, I believe, is seldom to be met with but in the libraries of the curious.

"If a man endeavour to counterfeit any other man's countenance, and that he fancy himselfe to have his haire, eyes, nose, mouth, and all other parts like him; and, in a word, if he imagine himselfe to be like him in his physiognomy, he may by this means come to know what his natural inclinations, and what his thoughts are, by the same which he finds in himselfe, during the time of this his making of faces. This opinion is grounded upon the experience of Campanella, who expresseth himselfe in these words:—'Cum quis hominem videt, statim imaginari oportet, se nasum habere, ut alter habet, et pilum, et vultum, et frontem, et locutionem: et tunc qui affectus, et cogitationes in hac cogitatione illi obrepunt, judicat homini illi esse proprios, quem ita imaginando contuetur. Hoc non absque ratione et experientiâ. Spiritus enim format corpus, et juxta affectus innatos ipsum fingit, exprimitque.'—(*De Sensu Rerum et Magia.*) I alwaies thought that the opinion of Campanella was, that a man should only imagine himselfe to have the same countenance with the other, as his words seem to mean; but when I was at Rome, understanding that he was brought into the Inquisition, I did, out of curiosity to be satisfied in this particular, take the pains to visit him there. Being therefore in the company of some abbots, we were brought to the chamber where he was; who, as soon as he perceived us, came to us, and entreated us to have a little patience till he had ended a little note, which he was writing to Cardinal Magaloti. When we were sate down, we observed him oftentimes to make certain wry faces,

which we conceived to proceed either from folly, or else from some pain that the violence of the torments which he had endured put him to; the calves of his legs being all beaten black and blue, and his buttocks having hardly any flesh on them; it having been taken from him piecemeal, to the end they might force him to confess the crimes that he was accused of. But a learned German will shortly publish the history of his life and misfortunes. To return, then, to our purpose, one of our company, amongst other discourse, asking him if he felt no pain, he smiling, answered no. And supposing that we had been something troubled at the wry faces which he made, he told us that, at our coming in he fancied himself to be Cardinal Magaloti, as he had heard him described. And he asked us withal, if he were not a very hairy man. Now I, who had before read that passage in his book, which I have before set down, presently conceived that these wry faces are altogether necessary for to be able to judge aright of another man's natural inclination. I shall not here set down what passed betwixt us in this interview, because it is wholly besides my present subject."—*Unheard of Curiosities*, &c. &c., written in French, by James Gaffarel, and Englished by Edmund Chilmead, Chaplaine of Christchurch, Oxon. pp. 174-176. London, 1650.

To this book, (which possesses very little merit of any kind, being full of the follies of Astrology,) the following testimony is prefixed by the translator, from Leo Allatius, author of a work entitled, *Apes Urbanæ*. "Curiosus hic liber intra sex menses ter fuit editus: bis Parisiis, et semel alia Galliarum in Urbe innominatâ." The only copy of the translation that has fallen in my way is in the library of the Earl of Minto.

NOTES AND ILLUSTRATIONS TO PART THIRD.

Note B, p. 223.—*Varieties of Intellectual Character.* (§ 4.)

> "The figur'd brass, the choral song," &c. &c.
> Akenside's *Ode to Sleep.*

These lines, and various other passages in this poet's works, will be read with additional interest, when it is known that they were not suggested entirely by fancy. I allude to those passages where he betrays a secret consciousness of powers adapted to a higher station in life than fell to his lot. Akenside, when a student at Edinburgh, was a member of the Medical Society, then recently formed,[1] and was eminently distinguished by the eloquence which he displayed in the course of the debates. Dr. Robertson (who was at that time a student of Divinity in the same University) told me that he was frequently led to attend their meetings, chiefly to hear the speeches of Akenside; the great object of whose ambition then was a seat in Parliament, a situation which he was sanguine enough to flatter himself he had some prospect of obtaining; and for which he conceived his talents to be much better adapted than for the profession he had chosen. In this opinion

[1] I was informed by the late Dr. James Gregory, (whose father, Dr. John Gregory, was a contemporary and an intimate friend of Akenside's,) that in this Society the doctrines of the great Boerhaave were first overthrown.

he was probably in the right, as he was generally considered by his fellow-students as far inferior in medical science to several of his companions.

The very scanty knowledge which the public possesses with respect to Akenside's life and character, will, I trust, be a sufficient excuse for recording these slight particulars.

NOTE C, p. 232.—*Varieties of Intellectual Character.* (§ 4.)

The late Dr. Thomas Brown was a person of rare and admirable talents; of the most extensive and various learning; and, in conversing upon metaphysical questions, which do not lie far removed from the surface, one of the quickest men and most acute arguers that I have ever known. Like most other men, however, of very quick parts, he was too confident in his rapid judgments; too ready to conclude that there were no difficulties in his way when he was unable to see them; and not sufficiently aware that in this science, much more than in any other, the success of our inquiries depends on that capacity of *patient thinking*, to which Newton had the modesty to ascribe all the merit of his greatest discoveries. In this capacity, I cannot help thinking that Dr. Brown was remarkably deficient; and to this cause, more than to any other, I am disposed to impute his very loose and inaccurate use of language on various important occasions.[1] To this cause, also, I apprehend we ought in candour to ascribe the countenance he has given to some doctrines which, to more cautious and profound thinkers, appear to have a practical tendency altogether at variance with his known principles and opinions. In short, what La Harpe has remarked of his friend Voltaire, as an apology for some inconsistencies in his metaphysical speculations, may be applied to Dr. Brown, and perhaps to most other poets who have engaged in similar inquiries. "Les objets de méditation étoient trop étrangers à l'excessive vivacité de son esprit. Saisir fortement par l'imagination les objets qu'elle ne doit montrer que d'un côté, c'est ce qui est du poëte; les embrasser par toutes les faces, c'est ce qui est du philo-

[1] I shall confine myself here to one instance; the use which he has made of the words *Will* and *Desire* as synonymous,—a confusion of terms, by which the question concerning the freedom of the will is completely prejudged. I select this in preference to others for various reasons:—1. Because the distinction between them was long ago clearly pointed out by Locke, the substance of whose remarks on this head may be concisely stated in the two following propositions:—1*st*, That at the same moment a man may *desire* one thing, and *will* another. 2*d*, That at the same moment a man may have contrary *desires*, but cannot have contrary *wills*. These decisive observations Locke has accompanied by the following sarcastic remark:—"I find the *will* often confounded with *desire*, and one put for the other, and that by men who would not willingly be thought not to have very distinct notions of things, and not to have written very clearly about them."—(*Essay on Human Understanding.*) [B. ii. c. xxi. § 30.] 2. Because Dr. Brown fell into this error at an early period of his life; and as I was anxious to correct it, and was aware even then of his unwillingness to abandon any of his declared opinions, I endeavoured indirectly to call his attention to it, by inserting the passage just quoted from Locke in a note (which, for obvious reasons, I was sure Dr. Brown would read) at the end of the second edition of my first volume. See Note O, [p. 495.] In order to convey my suggestion with still greater delicacy, I took no notice of Dr. Brown's slip, but referred to a passage in his antagonist Darwin, who, by a singular and somewhat ludicrous coincidence, had been guilty of the very same abuse of words. I must own it was with some regret that, in the third edition of his *Cause and Effect*, published as late as the year 1818, I found him not only persevering in the same mistake, but employing many pages of discussion in retorting on those philosophers by whom the distinction had been made.—See p. 49, *et seq.*

sophe; et Voltaire étoit trop exclusivement l'un pour être l'autre."—*Cours de Littérature*, tom. xv. pp. 46, 47.

The account given of Dr. Brown's posthumous work by his ingenious and friendly biographer, bears ample testimony to the truth of some of these remarks. "*It gives an additional value to the printed Lectures* to know, (and there is the most satisfactory evidence upon the subject,) that nearly the whole of the lectures that are contained in the first three volumes were written during the first year of his professorship, and the whole of the remaining lectures the following season.

"In going over his lectures the following year, his own surprise was great, to find that he could make but little improvement upon them. He could account for it in no other way, but by *his mind having been in a state of very powerful excitement.* As he continued to read the same lectures till the time of his death, they were printed from his manuscripts exactly as he wrote them, without addition or retrenchment."—(*Account of the Life and Writings of Thomas Brown, M.D.*, by the Reverend D. Welsh, minister of Crossmichael, p. 196.) A few pages before we are told, (what, indeed, I had always suspected,) that "the subject of many of his lectures he had never reflected upon till he took up the pen; and many of his theories occurred to him during the period of composition."—P. 193.

On another occasion we are assured, by the same authority, "that Dr. Brown preferred poetry to philosophy. The rapidity with which he arrived at the knowledge of the questions that have been discussed among philosophers, made him feel it as an irksome task to dwell upon those intermediate steps which were necessary for the satisfaction of other minds, though to his quicker glance the conclusions seemed intuitively obvious."—(Ibid. p. 394.) The same writer observes in a note, that "when the third edition of Dr. Brown's *Cause and Effect* was going to the press, in reading some of the most abstruse passages, he would say, *now this really seems to me more like the multiplication table than anything else.*"[1]

The respectable author from whom I have copied these details, with an amiable, though not always well-judged solicitude about the fame of his friend, considers them as *giving an additional value* to his posthumous work; but he would perhaps have acted more wisely if he had mentioned them as an apology for the imperfections which, under all the circumstances of the case, were unavoidable in the labours of any human being who did not write under the immediate influence of inspiration.

But the most exceptionable passages in Mr. Welsh's book, (because, from the oracular tone which he has been pleased to assume in them, they are the most likely to impose on shallow understandings,) are those in which he speaks of Dr. Brown's powers of *Analysis*, when he ought rather to have warned novices (who are always most liable to be misled by an overweening vanity) of the danger of attempting to analyze things unsusceptible of analysis; or, in Mr. Locke's homely, but expressive language, to have exhorted them to "*stop when they are at the end*

[1] In turning over the leaves of this bulky volume, (which I never had done till I had read Mr. Welsh's work,) I was sometimes forced to acknowledge the truth of the old saying, that "easy writing is not always the easiest reading." Whoever may have the courage carefully to peruse it from beginning to end, and happens to add to his powers of patient reading, the much rarer power of patient thinking, may perhaps be of opinion with me, that the anecdote recorded in the above passage might as well have been suppressed.

of their tether." They who are competent to form a judgment for themselves in such matters will at once understand my meaning, when I request them, after perusing Dr. Brown's three long lectures on *Personal Identity*, to take up Bishop Butler's very short Essay on the same subject, annexed to his *Analogy*.

The parts of Dr. Brown's work which I read with the most unmixed pleasure, were those eloquent passages of a moral and practical tendency, where, without giving way to a spirit of over-refinement, he follows the powerful impulse of his own feelings. These had to me a peculiar charm, as I recognised in all his sentiments a faithful picture of his benevolent, liberal, and elevated mind.

The foregoing remarks, some of which I offer with extreme reluctance, have been extorted from me by a perusal of the work of his learned but not very judicious biographer, who, notwithstanding the *aids he has derived from the instrument of Phrenology*,[1] seems to me not unfrequently to be subject to the same delusion which so often misled Dr. Brown, of fancying, when he had got to the end of his own sounding-line, that he had reached the bottom of the ocean. After the severe, and not very respectful strictures on Dr. Reid, to which he has called my attention in Dr. Brown's *Lectures*, my total silence might be construed into an acquiescence in their justness, and into an unqualified approbation of this new mode of extemporary philosophizing. I thought, therefore, that this public declaration of my sentiments was no more than what was due to the memory of my venerable and revered preceptor, if it had not been still more imperiously called for by the deep interest I can never cease to take in the future progress of the Philosophy of the Human Mind.

As it is more than probable that this may be the last opportunity I shall have of addressing the public, I cannot refrain from earnestly recommending to the attention of my successors in this branch of study, the memorable words of Mr. Locke, in one of his letters to his friend Mr. Molyneux, that "*even great parts will not master any subject without great thinking;*" to which I would beg leave to add, as a caution to the young and inexperienced, that they may not be led by the illusions of self-love, to flatter themselves that their minds, *when in a state of very powerful excitement*, are in a favourable mood for the investigation of truth.

NOTE D, p. 237.—*Varieties of Intellectual Character.* (§ 4.)

. . . . "Molle atque facetum
Virgilio annuerunt gaudentes rure Camœnæ."—
Horat. *Sat.* I. x. [44.]

"To Virgil, the muses that delight in rural scenes have granted the *delicate* and the *elegant*."

Such is the version of Christopher Smart, whose translation of Horace, notwithstanding the carelessness with which it was evidently executed by that ingenious and unfortunate man, is entitled to more attention than most prose versions of the

[1] For Mr. Welsh's own statement of the length to which he carries his admiration of Phrenology, see his *Life of Dr. Brown*, Note N, p. 519. From this long and very amusing Note, I have room only to extract a single sentence. "I am convinced that the time is speedily approaching when, great as Dr. Brown's merits in other respects will always be allowed to be, his *greatest merit* will be seen to consist in the near approach that he has made to many of the doctrines of phrenology, without the aids of the *instrument* that phrenology presents."

Latin poets. I cannot help thinking, that in the choice of both these epithets he has misapprehended the meaning of his author. With respect to the *first*, when I reflect on the numberless strokes of the pathetic that occur in Virgil, I cannot doubt that the word *molle* is to be understood here in the same sense in which it is used in the well-known passage of Juvenal.

> . . . . "Mollissima corda
> Humano generi dare se natura fatetur,
> Quæ lacrymas dedit. Hæc nostri pars optima sensus."—
> [*Sat.* xv. 131.]

In rendering *facetum* by *elegant*, Smart has been evidently misled by the following passage in Quintilian:—"Facetum non tantum circa ridicula opinor consistere. Neque enim diceret Horatius *facetum* carminis genus natura concessum esse Virgilio. Decoris hanc magis et exultæ cujusdam elegantiæ appellationem puto."—(*Instit.* lib. vi. cap. 3.) But Quintilian, it is plain, from the manner in which he introduces this comment, does not mean to *exclude* that quality, which, in our language, is denoted by the word *humorous:* this, on the contrary, he seems to consider as the primary and most obvious sense of the word; he only gives it as his opinion, that Horace intended to express something *more;* a refinement, to wit, and elegance of taste, which knew how to restrain this humour within the bounds of decorum.[1] Perhaps he meant to insinuate farther, that this refinement of taste was still more characteristical of the genius of Virgil than the talent which the common acceptation of *facetum* is apt at first to suggest. It is certain that a quick discernment of the exact limit which propriety prescribes to humour, is the most unequivocal of all tests of an elegant mind; and hence, probably, it is that *lepidus* as well as *facetus* conveys the idea both of humour and of elegance. "Socratem opinor in hac ironia dissimulationeque, longè lepore et humanitate omnibus præstitisse. *Genus est perelegans.*"[2] It is this combination which so remarkably distinguishes the taste of Addison.

An affinity of a similar kind may be remarked among the different significations of *urbanus*. The transition by which this word has passed from its literal sense, to denote a man of wit, is sufficiently obvious; as it is by habits of social intercourse with persons of refined manners that the accomplishment of wit is formed, and it is only in a great city that such a society is at all times to be found. For the same reason, too, that *facetum* came gradually to imply, along with its primitive meaning, the highest degree of taste and elegance, a like extension has been given to *urbanum;* insomuch that, in process of time, what was at first regarded merely as an accessary, seems to have figured as the principal (probably because the rarest) quality expressed by the word. Horace, accordingly, appears to have considered the judgment and self-command, necessary to check and regulate the excursions of wit, as the most important quality connected with that talent.

[1] To the same purpose Cicero has remarked that the word *facetum* is not applicable to every thing that is ridiculous. He particularly excepts buffoonery and grimace, and in general what is commonly called *broad humour*. "Atque hoc etiam animadvertendum est, non esse omnia ridicula facета. Quid enim potest esse tam ridiculum, quam sannio est?" &c. &c.—*De Orat.* lib. ii. cap. 61.

[2] Cicero *De Oratore*, lib. ii. cap. 67.

"Interdum urbani parcentis viribus, atque
Extenuantis eas consulto."—[Sat. I. x. 14.]

It is certainly curious, that all the three words *facetus*, *lepidus*, and *urbanus*, should agree with each other in implying, along with a certain vein of *pleasantry*, an elegance and refinement of taste and manners. Is not this a proof that the Romans considered the due regulation of this dangerous gift as the most infallible test of a highly polished delicacy?

These remarks are, I flatter myself, sufficient to justify the interpretation of the word *facetum* given in page 337. It may be alleged, that the passages in which Virgil betrays any traces of humour are too few to entitle that quality to a prominent place among the characteristics of his genius. But enough appears in the Eclogues to show that he possessed the talent, if he had thought fit to indulge it: and Horace, in all probability, was acquainted with many of his productions which he was prevented from publishing by the fastidiousness of his taste.

NOTE E, p. 253.—*Faculties of Man and Brutes.* (§ 1.)

"Il paroît bien certain que c'est le toucher qui nous apprend à connoître les distances où nous sommes des objets: lorsque l'aveugle de Cheselden eut recouvré la vue, tous les objets lui paroissoient être dans ses yeux, du moins on l'assure. Mais les perceptions qui peuvent résulter du toucher, pour ce qui concerne la forme des corps, ne dépendent pas seulement de la sensibilité des organes; elles dépendent encore de leur structure, de leur mécanisme. A cet égard l'homme a une immense supériorité sur la plupart des animaux. On s'explique comment l'expérience peut lui faire distinguer et reconnoître les formes des corps: il a la faculté de les palper en tous sens, et il peut, dans son enfance, s'éclairer par ses tentatives sans qu'il en résulte pour lui de dangers, ses parens le surveillent et le protègent. Les animaux dont les doigts sont enveloppés de cornes, et le corps revêtu de tégumens épais, et qui se conduisent presque d'eux-mêmes dès le premier moment de leur vie, ne se prêtent pas à cette explication; et l'on trouve dans ce cas plusieurs mammifères et plusieurs oiseaux qui cependant perçoivent les distances avec au moins autant d'exactitude que nous. Il étoit donc important de rechercher l'origine de ces perceptions. *Pour cet effet, j'ai réuni beaucoup d'observations qui m'ont démontré que, dans un grand nombre de cas, ce phénomène est* INSTINCTIF; *car plusieurs de ces animaux, en paroissant à la lumière, voient de suite les objets hors de leurs yeux, et même à leur distance réelle; ils les fuient, les évitent, et se conduisent à leur égard comme si un long usage eût consommé leur expérience.* La nature de ce mémoire ne me permet pas d'entrer dans le détail de ces observations, que je ferai connoître plus tard dans mon travail spécial sur l'origine des actions des animaux."—(*Examen de quelques observations de M. Dugald Stewart, qui tendent a détruire l'analogie des phénomènes de l'Instinct avec ceux de l'Habitude.* Par M. Frédéric Cuvier. *Mémoires du Muséum d'Histoire Naturelle*, tome dixième, à Paris, 1823, pp. 257, 258.

After these observations from the pen of so accurate a naturalist, added to those quoted in the text from Mr. Adam Smith, the conclusion to which they lead may,

I flatter myself, be now considered as established beyond the reach of controversy.

That the brutes derive from instinct a knowledge of many things which man learns from experience alone, is indeed an obvious fact, which has been admitted by the best philosophers in all ages; but in the present times, when so many attempts have been made by the learned to explain away the phenomena of instinct in all animals, both rational and irrational, it becomes necessary to enlarge upon various truths, which every man of plain understanding, unsophisticated by false science, is ready to admit on the evidence of his senses.

NOTE F, p. 270.—*Faculties of Man and Brutes.* (§ 1.)

"There is one species of large ants, which M. Huber denominates *Amazones*, who inhabit the same nests with an inferior species, namely, the dark ash-coloured ant, (*noir-cendrée,*) and whom we may call their auxiliaries. As soon as the heat of summer has set in, the Amazons muster their forces, and, leaving the auxiliaries to take care of the nest, march out in regular order, sometimes dividing their forces into two expeditions, but generally proceeding in one united army to the point of attack, which is always a nest belonging to ants of the same species as the auxiliaries with whom they live. These resist the aggression with great courage; but are soon compelled to fly from the superior force of the invaders, who enter at the breach they have made, and proceed to plunder the nest of all the eggs and larvæ which they can carry off. They return, laden with this booty, to their own habitations, and consign it to the care of the ash-coloured ants belonging to their community, who are waiting, in eager expectation, to receive them. These eggs and larvæ are watched, nourished, and reared to maturity, with the same care and assiduity which the auxiliaries bestow on their own progeny; and thus they become, in process of time, inmates in the same society with those who had originally kidnapped them; and towards whom, had they been brought up at home, they would have cherished an instinctive and inveterate hatred. The sole object of the Amazons in these expeditions, is to procure this supply of recruits for the advantage of the community to which they belong; and the sole business of their lives is to carry on these marauding adventures. They do not assist in any of the ordinary labours of the community. The tasks of building and repairing their city, of providing nourishment for the whole society, of rearing the brood of young, both of their own species and that of their companions, are entrusted solely to the race of auxiliaries, to whose services they have become entitled by right of conquest. In times of peace, the Amazons are totally inactive, and dependent on the labouring classes of the auxiliaries, who feed and caress them, minister to all their wants, and carry them wherever the temperature of the air is most grateful. In a word, they are gentlemen, waited on by their domestics, who appear to retain no sense of the injury that has been done them by their masters, but bear towards them the tender affection of children towards their parents. The more cruel relation of master and of slave seems indeed to be entirely excluded from this singular association of insects. In order to have a just idea of the complex system it involves, we must recollect, that each species consists of three kinds of sexes, having per-

fectly distinct offices to perform: that each insect exists in three different stages of transformation; and that, in addition to the race of ants, several species of aphis are also inmates under the same roof. In some nests, our author found auxiliary ants, of a different species from the ash-coloured, being what he called the miners, (*mineuses,*) but still bearing, in all respects, the same relations to the Amazons that the ash-coloured did in the former case, and obtained from their parents by the same violent methods."

"The Amazons are not the only ants that carry on this species of slave-trade; the sanguine ants (*fourmis sanguines*) having offered analogous facts with those above related. The author even discovered nests in which the sanguine ants are attended by both the above-mentioned species of auxiliaries; thus forming a triple association of races of ants, having very different manners and habits, but concurring in the same objects of necessary industry."—*Edinburgh Review*, vol. xx. pp. 163, 164.

M. Latreille, author of the article *Insectes* in the *Nouveau Dictionnaire d'Histoire Naturelle*, while he confirms by his own observations all the wonderful facts concerning Ants, related by M. Huber, has endeavoured to represent them in a light much less at variance with the general analogy of nature than they appeared in to that eminent naturalist. Some of his remarks upon this head seem to me so curious, that I am tempted to subjoin them to the foregoing extract from the *Edinburgh Review*.

In order to procure from the English reader that attention to the following passage to which it is entitled, it is proper to premise, that M. Latreille is considered by his countrymen as the first Entomologist in Europe. Besides many other works, he is the author of one of high authority, entitled "*Genera Crustaceorum et Insectorum*," 4 vols. 8vo. He also contributed the Third Volume to Cuvier's *Règne Animal*.

"L'Abeille est, de tous ces insectes, celui dont l'instinct est le plus parfait, le seul qui n'ait point d'habitudes carnassières, et son existence est un bienfait de la nature; les autres sont nés pour la destruction; elle semble au contraire être faite pour assurer la fécondation des végétaux, en transportant des uns aux autres le pollen de leurs fleurs que les vents seuls n'auroient pas aussi certainement propagé. . . . .

"Quoique l'instinct de ces insectes soit assujetti à une marche uniforme, il est cependant des cas extraordinaires où, pour le salut de leur race, ils varient leurs procédés. L'Auteur de la Nature a prévu ces circonstances particulières, et a permis à l'instinct de se modifier avec elles autant qu'il le falloit pour la permanence des sociétés qu'il avoit formées. C'est ainsi que pour réparer la perte des abeilles femelles, l'unique espoir de leurs sociétés, il apprend aux abeilles neutres à transformer la larve d'un individu de leur caste, qui n'est pas âgé de plus de trois jours, en une larve de reine ou de femelle; c'est ainsi encore que cette espèce d'abeille solitaire (*osmie du pavot*) qui revêt l'intérieur de l'habitation de ses petits d'une tenture formée de morceaux arrondis de pétales de coquelicot, emploie au même usage, lorsqu'elle en est dépourvue, les pétales de fleur de navette: il est évident que dans cette occasion le sentiment intérieur qui la guide sait se plier à la nécessité.

"Les sociétés dont nous avons parlé jusqu'ici sont toutes composées d'individus

de la même espèce; mais deux sortes de fourmis, que l'on désigne par les dénominations de *roussâtre* et de *sanguine*, nous présentent, à cet égard, un fait bien étrange, dont l'observation est due à M. Huber fils. Les sociétés de ces insectes sont mixtes; on y trouve, outre les trois sortes d'individus ordinaires, des neutres provenus d'une ou même de deux autres espèces de fourmis, enlevés de leurs foyers sous la forme de larves ou de nymphes. Les neutres de l'espèce roussâtre composent un peuple de guerriers, et de là viennent les noms d'Amazones, de Légionnaires, sous lesquels M. Huber les a désignés. Vers le moment où la chaleur de jour commence à décliner, si le temps est favorable, et régulièrement à la même heure, du moins pendant plusieurs jours consécutifs, ces fourmis quittent leurs nids, s'avancent sur une colonne serrée et plus ou moins nombreuse suivant la population, se dirigent jusques à la fourmilière qu'elles veulent envahir, y pénètrent malgré la résistance des propriétaires, saisissent avec leurs mâchoires les larves ou les nymphes des fourmis neutres de l'habitation, et les transportent, en suivant le même ordre, dans leur propre domicile. D'autres fourmis neutres de l'espèce conquise, nées parmi ces guerriers, et autrefois arrachées aussi dans l'état de larves à leur terre natale, prennent soin des larves nouvellement apportées, ainsi que de la postérité même de leurs ravisseurs. Ces fourmis étrangères que M. Huber compare à des nègres esclaves et à des îlotes, appartiennent aux espèces que j'ai désignées dans mon histoire de ces insectes, sous les noms de *noir-cendrée* et de *mineuse*.

"Les fourmis amazones s'emparent indistinctement de l'une ou de l'autre. J'avois été témoin, en 1802, d'une de leurs excursions militaires. L'armée traversoit une de nos grandes routes, dont elle couvroit la largeur sur un front d'environ deux pieds. J'attribuois ces mouvemens à une émigration forcée. Cependant, d'après la forme de cette espèce, j'avois déjà soupçonné, avant que M. Huber en publiât l'histoire, qu'elle avoit des habitudes particulières. J'ai depuis trouvé cette fourmi dans les bois des environs de Paris, et tous les faits avancés par ce naturaliste ont été vérifiés. J'essaierai ici d'en donner une explication et de prouver qu'ils sont en harmonie avec d'autres lois déjà connues. Les fourmis neutres enlevées par les guerriers de la fourmi amazone ne sont qu'expatriées, et leur condition n'éprouve aucun changement. Toujours libres, toujours destinées aux mêmes services, elles retrouvent dans une autre famille des objets qui les auroient attachées à la leur, et même des petits de leur propre espèce; elles les élèvent ainsi que ceux de leurs conquérans. Ne voyons-nous pas plusieurs de nos oiseaux domestiques nous donner l'exemple de pareilles adoptions, et se méprendre dans l'objet de leurs tendresse maternelle? Les fourmis neutres ne sont donc ni des esclaves ni des îlotes. Afin de diminuer certaines races et d'en propager d'autres, la nature, toujours fidèle à son système d'actions et de réactions, a voulu que plusieurs animaux vécussent aux dépens de quelques autres. Les insectes dont les espèces sont si multipliées, nous en fournissent une infinité de preuves. C'est ainsi que dans la famille des abeilles, celles qui forment le genre des nomades vont déposer leurs œufs dans les nids que d'autres abeilles ont préparés à leurs petits, et les provisions que celles-ci avoient rassemblées deviennent la proie de la postérité des nomades. Ces sortes de larcins eussent été insuffisans à des insectes qui, comme les fourmis amazones, sont réunis en grandes corporations; les vivres auroient bientôt été épuisées. Il n'y avoit de remède sûr que de s'approprier ceux qui les

récoltent; et de profiter non-seulement de leurs labours d'un jour, mais de ceux de toute leur vie. Au surplus, il étoit physiquement impossible aux fourmis amazones, d'après la forme de leurs mâchoires et des parties accessoires de leur bouche, de préparer des habitations à leur famille, de lui procurer des alimens, et de la nourrir. Leurs grandes mâchoires, en forme de crochets, annoncent qu'elles ne sont destinées qu'au combat. Leurs sociétés sont peu répandues, au lieu que celles des fourmis noir-cendrées et mineuses sont très-abondantes dans notre climat. Par leurs habitudes parasites, ces fourmis amazones mettent un obstacle à la trop grande propagation des dernières, et l'équilibre est rétabli."

* * * * *

"De tout ce que je viens d'exposer, je me plais à déduire cette conséquence: les lois qui régissent les sociétés des insectes, celles même qui nous paroissent les plus anomales, forment un système combiné avec la sagesse la plus profonde, établi primordialement; et ma pensée s'élève avec un respect religieux vers cette Raison Eternelle qui, en donnant l'existence à tant d'êtres divers, a voulu en perpétuer les générations, par des moyens sûrs et invariables dans leur exécution, cachés à notre foible intelligence, mais toujours admirables."—*Nouveau Dictionnaire d'Histoire Naturelle*, tom. xvi. p. 253, *et seq.* A Paris, 1817.

NOTE G, p. 285.—*Faculties of Man and Brutes.* (§ 2.)

For the following very curious information, (extracted from Collinson's *History and Antiquities of the County of Somerset*, published in 1791,) I am indebted to my nephew, Dr. Miller, physician at Exeter.

"In the year 1765, a woman in this parish, (Ditcheat,) of the name of Kingston, was delivered of a stout boy without arms or shoulders. He was baptized by the name of William, and, strange as his birth was, he is still living, a most extraordinary phenomenon of nature! possessing, without the usual appendages of arms, all the strength, power, and dexterity of the ablest and most regularly made men, and exercising every function of life. He feeds, dresses and undresses himself, combs his own hair, shaves his beard with the razor in his toes, cleans his shoes, lights his fire, writes out his own bills and accounts, and does almost every other domestic business. Being a farmer by occupation, he performs the usual business of the field, fodders his cattle, makes his ricks, cuts his hay, catches his horse, and saddles and bridles him with his feet and toes. He can lift ten pecks of beans with his teeth; with his feet throws a large sledge-hammer farther than other men can with their arms; and he has fought a stout battle, and come off victorious. Add to this, that he is lately married to a young woman of a reputable family. The above facts are truly authentic, and notorious to this place and neighbourhood."

Dr. Miller adds, "on referring to the present rector of Ditcheat, the Rev. William Leir, he informs me, in a letter I have just received from him, that the particulars in the above extract are perfectly correct; that this extraordinary person is still alive, and in a good state of health; that he has been twice married, and has ten children, none of whom have any defect in their persons."

Another correspondent of Dr. Miller's, Mr. Spencer of Oakhill, writes thus:—"I have known William Kingston personally these thirty years or upwards, and he is, as you state, without hands or arms, but certainly not capable of performing *all* the operations you enumerate. That he writes with his toes a very legible hand is true, and, if I do not greatly mistake, many years ago I saw him do it. He can also lift heavy burdens with his teeth, which also serve him to hold his bridle in riding; this I have seen him do. I have heard that he catches and bridles and saddles his horse, and that although he is not in appearance a very strong man, (I should think not more than five feet five or six inches high,) yet he has many times had combats with other men, and I have heard generally came off victorious. The method he takes in these combats, I am told, is to run very furiously at his adversary with his head, and strike him about the stomach, tripping up his heels at the same time."

In a subsequent letter from Mr. Spencer, it is stated, that "Kingston intends very shortly to wind up his little farming concern, and exhibit himself as a natural phenomenon. He has a little property, but not quite sufficient to maintain him."

I sincerely rejoice at this intelligence, as I think that such anomalous facts in the history of our species cannot be too generally known and witnessed. The case of Mr. Kingston corresponds exactly with that of the Indian compared by Strabo and Dio Cassius to the statues of Hermes. See p. 88 of this volume.

Since writing the above, a friend sent me the Fourth Volume of the *Memoirs of the Wernerian Society*, Part II., in which there is an extremely interesting and valuable paper by Dr. Hibbert, on *The Natural Expedients resorted to by Mark Yarwood, a Cheshire boy, to supply the want which he has sustained from birth of his fore-arms and hands.*

As Dr. Hibbert himself had an opportunity of examining the person he describes, he has stated the particulars of the case with all the skill and accuracy of a medical observer. His paper, therefore, does not admit of an abstract, and I must accordingly content myself with recommending it to the attention of the reader as a document equally curious and instructive.

After perusing these authentic statements, (which I have perhaps multiplied more than was necessary,) the reader may form a judgment for himself of the paradox of Helvetius, that "if the wrist of man had been terminated with the hoof of a horse, the species would have been still wandering in the forest." I hope he will agree with me, in preferring upon this point the plain good sense of Galen, as expressed in a passage already cited, [p. 288,] to the more refined conclusion of modern science; a conclusion which I remember, while the philosophy of Helvetius was in the height of its popularity, to have heard appealed to triumphantly as an indisputable axiom, not only in France, but in this island. I subjoin the Latin version of Galen, which does more justice to the conciseness and force of the original than I am able to do in English. "Ut autem sapientissimum animalium est Homo, sic et manus sunt organa sapienti animali convenientia. Non enim quia manus habuit, propterea est sapientissimum, ut Anaxagoras dicebat; sed quia sapientissimum erat, propter hoc manus habuit, ut rectissimè censuit Aristoteles. Non enim manus ipsæ hominem artes docuerunt sed ratio. Manus autem ipsæ sunt artium organum."

NOTE H, p. 292.—*Faculties of Man and Brutes.* (§ 3.)

It may be proper here to take some notice of the celebrated story (quoted by Locke from Sir William Temple) of the old parrot whom Prince Maurice saw and conversed with at Brazil.[1] That Prince Maurice, from whose mouth Sir William Temple heard it, believed the truth of his own statement, there can be little or no doubt; and that Sir William himself did not consider it as wholly incredible, is inferred by Mr. Locke, on very reasonable grounds, from the manner in which he introduces and relates it. "I have taken care," says Locke, "that the reader should have the story at large in the author's own words, because he seems to me not to have thought it incredible; for it cannot be imagined that so able a man as he should take so much pains, in a place where it had nothing to do, to pin so close not only on a man whom he mentions as a friend, but on a prince, in whom he acknowledges very great honesty and piety, a story which, if he himself thought incredible, he could not but also think ridiculous."

With respect to Mr. Locke's own opinion on the subject, we are left entirely in the dark. That he did not, however, give the story much credit, may be presumed from the cautious scepticism with which he expresses himself,—a scepticism greater than might have been expected, (when we consider the evidence on which the story rests,) from that credulity in the admission of extraordinary facts, of which this great man has given so many proofs in the first book of his *Essay*, and which seems, indeed, to have been the chief defect in his intellectual character.

I have not thought it necessary to transcribe the details of the relation, as they must necessarily have left a deep impression on the memory of all who have ever read Locke's *Essay*. Indeed, I have met with more than one of his professed admirers, who seemed to recollect little else which they had learned from that work than this story of the parrot.

After all, perhaps, it would not be found so easy a task as might at first be imagined, to state the arguments which justify us in rejecting, without one moment's hesitation, as altogether incredible and absurd, what plainly appears to have been admitted as certain, or at least not improbable, by such men as Sir William Temple and Prince Maurice. The speculation is not unworthy the attention of those who have a pleasure in tracing the gradual progress of Human Reason, and in investigating the circumstances on which this progress depends.

Another problem, which appears to myself highly curious, is suggested by the fact in question. Suppose for a moment this fact to be confirmed by the testimony of our own senses,—that we actually saw and heard one of the lower animals, a dog for example, conversing with his master in articulate language;[2]—it cannot, I think, be doubted that the spectacle would be, in an extreme degree, offensive and painful; it is so, in *some* degree, when it is merely presented to the imagination. Now, to what principle of our nature are we to refer the painful emotion

[1] *Essay on the Human Understanding*, book ii. chap. xxvii. sect. 8. [See also *supra*, *Works*, vol. i. p. 285.]

[2] A dog of this description, according to Leibnitz, was actually seen by himself.—See what I have said on this subject in the second part of my *Dissertation prefixed to the Supplement to the Encyclopædia Britannica*. [*Supra*, *Works*, vol. i. pp. 285, 567.]

which such a spectacle would excite? I apprehend, in a very great measure, to our sympathy with what we conceive to be a rational mind degraded by a union with the brutal form, and condemned by nature to the brutal condition. It is sometimes difficult to avoid a slight feeling of this sort, when our eye happens to catch and to fix the seemingly reflecting and serious eye of an elephant. In consequence of that intimate association which is established by early and constant habit between the ideas of speech and of reason, the mere power of uttering articulate sounds would, I apprehend, be in a dog disagreeable *at first*, even although he should exhibit no marks of intelligence superior to the rest of the species. It is only our experience of the limited and unmeaning vocabulary of parrots, combined with the ludicrous mistakes which they are continually making in its application, which reconciles us to these birds as an article of amusement. We are told, accordingly, by Sir William Temple, that "one of Prince Maurice's chaplains, who had witnessed the conversations with the parrot of Brazil, and who lived long afterwards in Holland, would never, from that time forth, endure a parrot, but said they were all possessed with a devil."

I have been led to start this problem, chiefly by a passage which I have lately met with in Huygens's *Conjectures concerning the Planetary Worlds*, where the truly illustrious writer takes notice of the same fact which I have just remarked, —the horror with which we would look at any animal differing in shape very widely from ourselves, but possessing similar powers of reason and of speech. This he explains by our comparing the anomalous and monstrous appearance with our preconceived notions of beauty and deformity,—notions which he resolves (much too precipitately in my opinion) into the effects of custom and habit alone. The true theory, I suspect, lies a little deeper in the nature of man. If this imaginary animal should happen to resemble any of the brutes, the horror it would inspire has been already accounted for. If it should differ from man in the dimensions and relative proportions alone of the body, I should ascribe its disagreeable effect to the habitual experience we have had, how admirably the usual frame and size of the human body are fitted for its various functions; and to our sympathy with the sufferings of a being apparently so ill-adapted to the scene where it is destined to act. The whole passage, however, is an object of some curiosity, as it is the earliest I know, where this theory (ascribed by Mr. Smith to Father Buffier, and afterwards adopted by Sir Joshua Reynolds) concerning the influence of custom on our ideas of beauty, is pushed to all its extent.

"Etenim omnino cavendum est ab errore vulgi, cum animum rationis capacem non alio in corpore, quam nostris simili habitare posse sibi persuadet. Ex quo factum est, ut populi penè omnes, atque etiam philosophi quidam, humanam formam diis adscripserint. Hoc vero non nisi ab hominum imbecillitate et præjudicata opinione proficisci quis non videt? Uti illud quoque, quod eximia quædam pulchritudo humani corporis esse putatur: cum tamen ab opinione et assuetudine id totum quoque pendeat, affectuque eo, quem cunctis animalibus natura provida ingeneravit; ut sui similibus maxime caperentur. Illa verò tantum possunt, ut non sine horrore aliquo animal homini multum dissimile conspectum iri credam, in quo rationis et sermonis usus reperiretur. Nam si tale solummodo fingamus aut pingamus, quod, cætera homini simile, collum quadruplo longius habeat, vel oculos rotundos duploque amplius distantes; continuo eæ figuræ nascuntur, quas non pos-

simus intuentes non aversari, quamvis ratio deformitatis nulla reddi queat."—Christiani Hugenii *Cosmotheoros*, lib. i.

[The preceding suggests—

"*Simia, quam similis, turpissima bestia nobis.*"—Ennius.—*Ed.*]

NOTE I, p. 299.—*Faculties of Man and Brutes.* (§ 3.)

Having more than once referred to the Baron Cuvier in the course of this chapter, I beg leave to add, before concluding these notes, his candid confession of the very limited knowledge we possess with respect to the functions of the different parts of the brain.

At a time when so many attempts are daily making to vitiate the Philosophy of the Human Mind, by chimerical speculations concerning this organ, it may be useful to contrast with these presumptuous reveries, the modest and hesitating statement of the first comparative anatomist and physiologist of the age.

"Il y a donc dans notre corps une partie dont le bon état est une condition de la pensée; nous ne pensons qu'avec cet organe, comme nous ne voyons qu'avec l'œil. Et remarquez que c'est là un fait de simple histoire naturelle, qui n'a rien de commun avec le système métaphysique qu'on nomme matérialisme; système d'autant plus foible que nous avons encore bien moins de notions sur l'essence de la matière, que sur celle de l'être pensant, et qu'il n'éclaircit par conséquent aucune des difficultés de ce profond mystère."—*Dict. des Sciences Naturelles*, Art. Ame des Bêtes.

"La nature du principe sensitif et intellectuel n'est point du ressort de l'histoire naturelle; mais c'est une question de pure anatomie que celle de savoir à quel point du corps il faut qu'arrivent les agens physiques qui occasionnent les sensations, et de quel point il faut que partent ceux que produisent les mouvemens volontaires, pour que ces sensations et ces mouvemens aient lieu. C'est ce point commun, terme de nos rapports passifs, et source de nos rapports actifs avec les corps extérieurs, que l'on a nommé le siège de l'âme, ou le *sensorium commune*."

* * * * *

"Il est facile de conclure que c'est dans le cerveau que doit se trouver ce *sensorium* que l'on cherche. Mais il n'est pas aussi aisé de déterminer la partie du cerveau qui est spécialement consacrée à cette fonction importante. Cet organe, qui cesse totalement ses fonctions à la moindre compression, peut perdre des portions considérables de sa substance sans qu'on remarque d'affoiblissements sensibles dans ces mêmes fonctions. Ce n'est donc pas tout le cerveau qui est le *sensorium commune*, mais seulement quelques unes de ses parties: Mais laquelle?

"Ici l'expérience ne peut pas nous conduire fort loin. Des blessures qui pénètrent profondement dans la substance du cerveau, produisent des désordres trop violens et trop subits dans l'économie animale, pour qu'on puisse nettement distinguer les effets propres à chacune d'elles.

"A la vérité on a cru remarquer que les blessures du *cervelet* arrêtoient les mouvemens vitaux et involontaires, tels que celui du cœur, et que celles du cerveau exerçoient leur influence principale sur les mouvemens animaux et volontaires; mais cette observation n'est pas confirmée. On a donc été obligé de se contenter du raisonnement, et c'est ce qui a fait diverger les opinions.

"D'abord il étoit naturel de chercher ce point central à quelque endroit où tous les nerfs parussent se rendre; mais comme il n'y a pas un tel endroit, et que l'œil ne peut suivre les nerfs que jusqu'à des points encore assez éloignés les uns des autres, l'imagination a tracé le reste de leur route: les uns ont donc supposé qu'ils arrivoient tous au cervelet; d'autres à la glande pinéale, d'autres au corps calleux.

"Descartes a pris le parti de la glande pinéale, et a rendu célèbre ce petit corpuscule; mais il est peu vraisemblable qu'il remplisse de si hautes fonctions, parce qu'il est souvent altéré, et contient presque toujours des concrétions pierreuses. Bontevox, [Bontekoe?] Lancisi et Lapeyronie sont ceux qui ont parlé pour le corps calleux; mais cette partie manque à tous les animaux non-mammifères, et il est à croire que le *sensorium commune* doit être une partie essentielle, et qui disparoît ou change de forme la dernière de toutes.

"La même objection a lieu par rapport au *septum lucidum* adopté par Digby.

"Enfin pour ce qui concerne le cervelet, dont l'importance a été soutenue par Drelincourt, il y a cette grande difficulté, que c'est presque la seule partie du cerveau où l'on ne voit clairement aucun nerf se rendre.

"On ne peut guères non plus regarder comme le siège de l'âme quelque partie double, comme les corps cannelés, pour lesquels s'est déclaré Willis; et les deux grands hémisphères, ou plutôt leur partie médullaire, appelée centre ovale, et défendue par Vieussens. *D'ailleurs Sœmmerring nous paroît assez bien prouver qu'aucune partie solide n'est propre à cette importante fonction.* Il semble en effet, que les nerfs agissent en conduisant quelque fluide vers le cerveau ou vers les muscles, et que le sujet corporel affecté par l'arrivée ou le départ des fluides des différens nerfs, doit lui-même être fluide pour être susceptible de modifications mécaniques ou chimiques, aussi rapides et aussi variées que le sont les différens états que les modifications occasionnent dans l'âme. *C'est d'après cette manière de voir que Sœmmerring regarde l'humeur renfermée dans les ventricules du cerveau, comme le véritable organe de l'âme.*"—Ibid. Art. Siège de l'Ame.

[APPENDIX BY EDITOR.—(P. 370.)

Note in Final Supplement to the History of James Mitchell.

I thought it would be interesting to obtain some account of the present state (*i.e.*, in 1854) of James Mitchell; and in reference to my inquiries, have to return my best thanks for the information politely communicated by his sister, Miss Mitchell, by his brother, Lieut. Mitchell, and by Mr. Grant, banker in Nairn. It amounts, however, only to this,—that little or no change in his condition has occurred, beyond what his advance in age must have occasioned.

Mr. Grant states,—"He is in the enjoyment of excellent health, and constantly moving about."

Miss Mitchell, with whom her brother James has always continued to reside, says,—"I have had some additional anxiety regarding poor James's future safety,

in the immediate prospect of a railway here;—it being nearly impossible to convey to him a sense of his danger, without his *experiencing it*, our means of communication are so very limited. Could he once be made aware of his danger, there would be little cause for fear of his exposing himself,—he is generally so cautious in his movements; but as his mind is still sufficiently active to impel him to ascertain the object of any new work, we must do what we can to protect him, and look to a higher power to aid our weak endeavours, which the past gives every encouragement to do, from his very wonderful preservation from serious injury hitherto."

Lieut. Mitchell writes,—"As to James's present state, I may mention, that he is now (July 1854) about fifty-nine years of age; that he is stout and healthy; gives little or no trouble, further than satisfying his necessary wants; his conduct most affectionate to his sister; and, apparently, he is at all times happy and contented. The only change in him for several years back, is such as might be expected from advancing years; he does not now take such long walks as formerly, and does not go so often from home. This may arise, however, in some measure, from many of his kind friends in the district of country around Nairn being, of late years, removed by death. He is not so easily irritated as in his younger days. The sight of that eye which was operated on in 1809, is now quite gone; but he still sees a little with the other. He is as fond as ever of smoking tobacco, a habit which, I find, he acquired in London, at the time his eye was couched, although it was afterwards confirmed when he came to reside at Nairn in 1811. He is now very fond of it; and so systematic in all his habits, that he has his regular number of smokes at home every day, in addition to what he may get from his numerous acquaintances in the town,—sometimes more than may be good for him, but which my sister cannot at all times prevent." Lieut. Mitchell adds, "There is a short account of my brother in Chambers's *Miscellany*, No. 11, by a gentleman who saw him in 1832."—*Ed.*]

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